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IN THE

**Supreme Court of the United States**

OCTOBER TERM, 1978

No. **78-1677**

PACIFIC LEGAL FOUNDATION, et al.,  
*Petitioners,*

v.

DEPARTMENT OF TRANSPORTATION,  
*Respondent.*

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**PETITION FOR A WRIT OF CERTIORARI**  
**to the United States Court of Appeals**  
**for the District of Columbia Circuit**

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**PETITION FOR A WRIT OF CERTIORARI  
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The petitioners, Pacific Legal Foundation, a nonprofit public interest organization, William R. Bonner, Jr., Albert Ferri, Jr., Thomas L. Fitzpatrick, Vicki A. Godfrey, Anna Marie MacArthur, Debra A. Martin, Dorothy C. Olley, W. Hugh O'Riordan, and Donald C. Simpson, respectfully pray that a writ of certiorari issue to review the opinion and judgment of the United States Court of Appeals for the District of Columbia Circuit.

## OPINION BELOW

The opinion of the court of appeals, not yet reported, is set forth in Appendix A.

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## JURISDICTION

The judgment of the court of appeals (Appendix B) was entered on February 1, 1979. The court of appeals denied a timely petition for rehearing *en banc* on March 5, 1979. The jurisdiction of this Court is invoked under 15 U.S.C. § 1394(a)(4) and 28 U.S.C. § 1254(1).

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## QUESTIONS PRESENTED FOR REVIEW

1. Whether, in ignoring the Department of Transportation's concealment of data regarding the excessive number of deaths in air bag equipped cars, the court of appeals failed in its responsibility to insure procedural fairness in the promulgation of an order affecting all Americans.
  2. Whether the court of appeals, in finding that the Secretary of Transportation considered public reaction despite his own statements to the contrary, so exceeded the limits of judicial review as to warrant the exercise of this Court's supervisory power.
- 

## STATUTORY AND REGULATORY PROVISIONS INVOLVED

The relevant portions of the Administrative Procedure Act, 5 U.S.C. §§ 551, *et seq.*, the National Traffic and Motor Vehicle Safety Act of 1966, as amended, 15 U.S.C. §§ 1381, *et seq.*, and Federal Motor Vehicle Safety Standard 208, 49 C.F.R. § 571.208 (1977), are set forth in Appendices C, D, and E respectively.

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## STATEMENT OF THE CASE

### A. History of the Proceedings

The National Traffic and Motor Vehicle Safety Act authorizes the Department of Transportation (hereinafter DOT) to establish motor vehicle safety standards to reduce the toll of deaths and injuries resulting from traffic accidents. 15 U.S.C. §§ 1381, 1392. Such standards must be practicable, must meet the need for safety and be set forth objectively, and must be based upon a consideration of relevant available data. 15 U.S.C. §§ 1391(2), 1392(a) and (f). Judicial review of such standards takes place under the "arbitrary and capricious" standard for informal rulemaking, 5 U.S.C. § 706(2)(A), and under the substantive criteria set forth in the Safety Act. Opinion of the court of appeals (hereinafter Opinion), Appendix A at 9.

In 1970, out of concern for the low usage of automotive seat belts, DOT issued its first rule requiring the installation of passive restraints in cars. Unlike conventional seat belts, which must be fastened before they

are effective, passive restraints offer protection without the need of action by car occupants. DOT's passive restraint requirement, subsequently modified, was remanded before taking effect by the Court of Appeals for the Sixth Circuit on the ground that the standard did not meet the Safety Act's requirement of objectivity. *Chrysler Corp. v. Department of Transportation*, 472 F.2d 659 (6th Cir. 1972.)<sup>1</sup>

The remanded rule remained suspended until December, 1976, when then-Secretary of Transportation William T. Coleman, Jr., proposed a massive demonstration program of passive restraints rather than mandate the installation of devices with which the public was unfamiliar and which it might ultimately reject. DOT, *The Secretary's Decision Concerning Motor Vehicle Occupant Crash Protection* (December 6, 1976) (hereinafter Coleman Decision), Joint Appendix below at 65-66, 111-19 (hereinafter JA). Under the program which he negotiated, four automobile manufacturers would produce one-half million 1980-81 model cars equipped with passive restraints. Opinion at 7.

Four months after Coleman's decision the new Secretary of Transportation, Brock Adams, reopened the rulemaking proceeding because, among other reasons, "public acceptance or rejection of passive restraints is not one of the statutory criteria which the Department is charged by law to apply in establishing standards." DOT, Final Rule, *Occupant Restraint Systems* (June 30, 1977) (hereinafter Adams Decision), Appendix F hereto at 51.

<sup>1</sup> The decision left standing another portion of the rule requiring ignition interlocks in new cars. These devices prevented operation of a car's starting system unless all front seat occupants had buckled their seat belts. Public opposition to interlocks was so strong that Congress prohibited their requirement by DOT. Opinion at 6.

On June 30, 1977, Secretary Adams announced the final rule here at issue. Adams Decision, Appendix F. The new rule amends Federal Motor Vehicle Standard 208, 49 C.F.R. § 571.208, to require the provision of front seat passive restraints in all automobiles, beginning with larger size cars manufactured after August 31, 1981, and extending, in two phases, to vehicles of all sizes produced after August 31, 1983. The Secretary's decision also resulted in the termination of the Coleman demonstration program. Letter from Ford Motor Company to Brock Adams (July 13, 1977), and letter from General Motors Corporation to Brock Adams (August 24, 1977), JA at 984-85, 1098-99.

Because the new safety standard involves a nonbelt restraint system, it was subject to congressional review pursuant to 15 U.S.C. §§ 1410b(b)-(d). Neither house disapproved the standard. In 1978, however, Congress specifically prohibited the use of appropriated 1979 DOT funds to implement or enforce the air bag requirement. DOT and Related Agencies Appropriation Act of 1979, Pub. L. No. 95-335, § 317, 92 Stat. 450 (1978).

## B. The Nature of Passive Restraints

Amended Standard 208 requires that front seat positions in new cars be provided with specified levels of frontal crash protection "by means that require no action by vehicle occupants." 49 C.F.R. § 571.208 S4.1.3(a). There are only two existing restraint systems capable of providing such passive protection—air bags and passive belts. Air bags are inflatable cushions stored in the steering column and dashboard of a car; they are designed to inflate when the car is involved in a frontal collision of moderate or greater severity and thus cushion the occupant's impact with the interior of the car.

Unlike the lap-shoulder belts now found in cars, air bags are effective only in frontal collisions and provide no protection in rollovers or side impacts. Cars equipped with air bags are thus still required to contain front seat lap belts as well, though they need no longer have shoulder belts. 49 C.F.R. § 571.208 S4.1.3(c)(2); see, e.g., National Highway Traffic Safety Administration (a unit of DOT, hereinafter NHTSA), *Explanation of Rule Making Activity* (July 26, 1977), JA at 212. Because occupants of air bag equipped cars must actively fasten their lap belts for full protection, the air bag "is not a completely passive system." Coleman Decision, JA at 87 n.35.

Passive belts automatically enclose car occupants, by either mechanical or electronic means, when they enter or start a car. Passive belts are currently feasible only in cars which have front bucket seats. For this and other reasons, DOT estimates that 75% of the cars manufactured under the new rule will be equipped with air bags. Opinion at 4 n.6.

Secretary Adams projected that if all cars on the road were equipped with air bags, the devices would annually prevent 9,000 deaths beyond those currently prevented by lap-shoulder belts, due to the low usage of conventional belts. Opinion at 8. On an individual basis, however, conventional lap-shoulder belts are "virtually identical" in effectiveness to the air bag/lap belt system, according to DOT. Coleman Decision, JA at 130. Air bags do present several new hazards, however, the major one being inadvertent deployment and possible loss of control as a result. Opinion at 18. They must also be replaced after each deployment at a cost of several hundred dollars. Adams Decision, Appendix F at 62.

Secretary Adams' projection of the air bag's safety benefits was based on effectiveness estimates derived from laboratory testing of the device. Opinion at 12-13. There was, however, a limited amount of real-world experience with air bags; 12,000 air bag cars have been manufactured, of which approximately 10,000 were sold to the public between 1973 and 1976. The Secretary found that the field experience of these cars was "encouraging." Adams Decision, Appendix F at 59. The court of appeals stated, however:

"[f]ive deaths have occurred in airbag cars in frontal crashes. By the agency's estimates of airbag effectiveness, no more than one fatality would have been expected." Opinion at 14 n.47.

Secretary Adams claimed that the number of deaths was "much too small to be statistically significant." Adams Decision, Appendix F at 59. At the time the Secretary made his decision, DOT possessed only one document dealing with statistical significance. That document stated:

"The discrepancy between the actual and expected numbers of deaths is statistically significant at the 99% confidence level ...." Office of Statistics and Analysis, NHTSA, *Statistical Analysis of Air Bag Deaths I* (April 9, 1976), added to the record by order of the court of appeals (October 31, 1978).

The public did not know of this study when it participated in the DOT rulemaking, and Congress was unaware of it while reviewing the Secretary's action. This is because DOT concealed this document for two and one-half years, until forced to disclose it by petitioners'

requests under the Freedom of Information Act, 5 U.S.C. § 552.<sup>2</sup>

### C. Jurisdiction and Decision of the Court of Appeals

In September, 1977, petitioners requested the court of appeals to review the Secretary's order pursuant to 15 U.S.C. § 1394(a)(1).<sup>3</sup> Petitioners contended that the Secretary had acted arbitrarily and capriciously in mandating a device associated with an excessive number of traffic fatalities and that the Secretary had illegally refused to consider public reaction.

On February 1, 1979, the court of appeals entered its judgment affirming the Secretary's order. The court held that Secretary Adams did not abuse his discretion in

<sup>2</sup> Petitioners learned of the existence of the document as a result of a request to NHTSA in July, 1978, for all documents relating to the statistical significance of the air bag fatalities. In response, NHTSA stated that only one such document existed and that NHTSA was withholding that study on the ground that it was a deliberative memorandum exempt from disclosure under 5 U.S.C. § 552(b)(5). These facts are set forth in Petitioners' Motion for Supplementation of the Record (September 15, 1978), and the memorandum and correspondence attached thereto.

NHTSA finally released the document in September, 1978, after counsel for DOT was informed that failure to do so would result in petitioners' moving the court of appeals for an order compelling production to complete the record on review. Petitioners' Reply to Respondent's Response at 2-3 n.1 (October 12, 1978). Five days after petitioners filed the document with the court, and fourteen months after the Secretary issued his order, NHTSA released a new report challenging the conclusions of the prior study. NHTSA, *An Analysis of Fatalities in Cars Equipped with Air Bags* (undated). Both documents were added to the record on review by court order on October 31, 1978.

<sup>3</sup> The action was later consolidated with a petition for review filed by Ralph Nader and Public Citizen which sought to speed up the implementation schedule for passive restraints. Ford Motor Company intervened solely for the purpose of defending the implementation schedule. Brief of Intervenor below at 2.

mandating passive restraints. The court made no mention of the agency's concealment of its air bag fatality study. On the question of public reaction, the court agreed with petitioners that the Safety Act requires the Secretary to consider public reaction. It nonetheless held that "[d]espite the Secretary's claim that he need not consider the [public] response to the new standard," he nevertheless did take the issue into account. Opinion at 16.

## REASONS FOR GRANTING THE WRIT

The order of the Secretary of Transportation will affect every person who sets foot inside a car. In each of the tens of thousands of automobile collisions which occur yearly, the Secretary's order will become, without exaggeration, a matter of potential life or death. Yet on an issue of this magnitude, the agency entrusted with the public safety dismissed as statistically insignificant the most crucial real-world trial of air bags, the test of whether or not they actually save lives. And in a rulemaking required by law to proceed on the basis of an open record, the agency concealed the one document which dealt with the true significance of the disproportionately high number of fatalities experienced in air bag cars.

### A. The Agency's Concealment of Data, Ignored by the Court of Appeals, Materially Tainted the Issuance of an Order Which Will Affect the Lives of Virtually All Americans

DOT stated that its estimates of air bag effectiveness were based on "engineering judgment and laboratory simulations." Coleman Decision, JA at 98. Field ex-

perience with the device played no part in DOT's calculation of the effectiveness of the air bag in various collision modes. The agency recognized that "[s]imulations can ... never duplicate the full spectrum of real-world collisions ...." *Id.* In light of the uncertainty of this basis for predictions, the court of appeals stated that "DOT must monitor closely the road experience with any standard based on experimental data ...." Opinion at 13.

DOT, however, has displayed a pattern of concealing or ignoring such road experience. Only last year, the Ninth Circuit Court of Appeals set aside a truck brake standard because the agency failed to respond to the adverse real-world behavior of a device it had mandated. *Paccar, Inc. v. National Highway Traffic Safety Administration*, 573 F.2d 632 (9th Cir. 1978), *cert. denied*, \_\_\_ U.S. \_\_\_, 99 S. Ct. 184 (1978). Scores of accidents implicating the device, involving over eighteen fatalities, occurred before the standard was set aside. American Public Transit Association, Petition for Exemption from Standard 121 (September 16, 1977), attached to Petitioners' Principal Brief below at A-24.

In the instant rulemaking the Secretary dismissed the disproportionate number of air bag fatalities as "much too small to be statistically significant."<sup>4</sup> Adams Decision,

<sup>4</sup> The court of appeals found that several of the excessive air bag fatalities could not have been prevented by any restraint system, citing as support the new fatality study which DOT issued after releasing the previously withheld report. Opinion at 14 n.49. To the extent that the court relied on this document, its action is inconsistent with the rule that a court review the record which was before the decision maker, and not a *post hoc* record manufactured after a decision has been made—in this case, a document issued fourteen months after the

(footnote continued)

Appendix F at 59. The Secretary cited no document and gave no analysis to support this claim; it was simply his bare assertion. As subsequent events showed, DOT in fact had no support for this contention. What the agency did have was a study by one of its own statisticians that directly refuted the Secretary's statement:

"[T]he actual number of deaths is at least four times as high as the expected number. The discrepancy between the actual and expected numbers of deaths is statistically significant at the 99% confidence level (Using the Poisson test, as shown ....

"The field data, although limited in quantity and scope, thus raise a striking contrast between actual and predicted experience. The statistical evidence is sufficient to reject the hypothesis that air bags are 55% effective in reducing fatalities in all frontal impacts.<sup>5</sup>

....

(footnote continued)

Secretary's order for the sole purpose of refuting the previously concealed NHTSA report.

"[T]he focal point for judicial review should be the administrative record already in existence, not some new record made initially in the reviewing court." *Camp v. Pitts*, 411 U.S. 138, 142 (1973). See also *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168-69 (1962); *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 420 (1971).

The on-site investigation reports prepared by DOT on the accidents, moreover, contain no support for the agency's claim of unpreventability.

<sup>5</sup> The agency subsequently raised its effectiveness estimate for the device to 65%. NHTSA, *Explanation of Rule Making Action*, JA at 259.

"The high incidence of fatalities may be suggestive that the air bag is totally ineffective in fatality reduction." Office of Statistics and Analysis, NHTSA, *Statistical Analysis of Air Bag Deaths* 1-2, 3 (April 9, 1976).

Despite the statutory requirement that the rulemaking record contain all the evidence before the agency, DOT concealed this document for two and one-half years.<sup>6</sup>

In affirming the Secretary's order, the court of appeals made no mention whatsoever of DOT's concealment of the fatality study. Yet the court has elsewhere noted its duty, "as the exponent of procedural fairness," to examine whether an agency "has infused the administrative process with the degree of openness, explanation, and participatory democracy required by the APA." *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1027 (D.C. Cir. 1978) (footnote omitted). And in a recent opinion, the court characterized another agency's failure to disclose documents as "naturally cast[ing] a cloud over the entire proceeding." *Goland v. CIA*, No. 76-0166, slip op. at 2 (D.C. Cir. March 28, 1979).

The court went on to accept without reservation DOT's "expressed ... intention to conduct an 'intensive monitoring program to oversee the implementation' " of the Secretary's order, despite the agency's behavior in this

<sup>6</sup> Under 15 U.S.C. § 1394(a)(1), the rulemaking record is to be filed with the reviewing court pursuant to 28 U.S.C. § 2112, which defines the record to include, among other things, the "evidence ... before the agency." 28 U.S.C. § 2112(b). The District of Columbia Circuit has construed this to encompass "any document that might have influenced the agency's decision," including both "the evidence relied upon and the evidence discarded." *National Courier Ass'n v. Board of Governors of the Fed. Reserve Sys.*, 516 F.2d 1229, 1241 (D.C. Cir. 1975); *Ethyl Corp. v. Environmental Protection Agency*, 541 F.2d 1, 36 (D.C. Cir. 1976), cert. denied, 426 U.S. 941 (1976).

rulemaking<sup>7</sup> and despite its failure to respond to adverse road experience in *Paccar*. Opinion at 13 n.45. The court's failure to even consider DOT's concealment of data in affirming an order of this magnitude warrants this Court's exercise of its supervisory power.

#### **B. In Finding that the Secretary Considered Public Reaction Despite His Own Statements to the Contrary, the Court of Appeals Went Beyond the Limits of Judicial Review**

Former Secretary Coleman's decision not to require passive restraints was based essentially on the issue of public reaction. He would not mandate a device with which the public was unfamiliar and which it might ultimately reject. Coleman Decision, JA at 65-66, 111-19. When he reopened the rulemaking, Secretary Adams stated that he was:

"concerned that this recent decision by the Department may not be entirely consistent with the statutory mandate of the National Traffic and Motor Vehicle Safety Act . . . ." DOT, Proposed Rule, *Occupant Crash Protection* (March 24, 1977), JA at 145.

The indication that public reaction was an extrastatutory consideration was repeated when Secretary Adams issued his order, explaining that he had reconsidered his predecessor's decision because:

"public acceptance or rejection of passive restraints is not one of the statutory criteria which

<sup>7</sup> DOT also issued a number of public service brochures which suggested that lap belts need not be used in air bag cars. The court found such statements to be potentially "misleading." Opinion at 18 n.63.

the Department is charged by law to apply in establishing standards." Adams Decision, Appendix F at 51.

The Secretary's treatment of public reaction was a major issue in the action below. Agreeing with petitioners, the court of appeals held that:

"the agency cannot fulfill its statutory responsibility unless it considers popular reaction." Opinion at 15-16.

Yet the court went on to hold that the Secretary did adequately consider this factor:

"Despite the Secretary's claim that he need not consider the response to the new standard, he adequately justified his action in terms of the anticipated public reaction." Opinion at 16.

These holdings are irreconcilable. Once the Secretary determined that public reaction was an extrastatutory factor, he could not possibly have given it adequate consideration, for to do so would have been to act beyond his statutory duties as he understood them.

This Court has pointed out the function in judicial review of an administrator's explanation of his decision:

"We have made it abundantly clear before that when there is a contemporaneous explanation of the agency decision, the validity of that action must 'stand or fall on the propriety of that finding ....' " *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc.*, 435 U.S. 519, 549 (1978), quoting *Camp v. Pitts*, 411 U.S. 138, 143 (1973), and citing *Securities and Exchange Commission v. Chenery Corp.*, 318 U.S. 80 (1943).

The court of appeals ignored the Secretary's explanation of what he considered, substituting instead its own version of the decision making process.

The only consideration which the Secretary gave to public reaction was to *prejudge* the issue at the outset of the rulemaking. When he first reopened the proceeding, Secretary Adams stated:

"I cannot agree that consumers would respond to passive restraints in the same fashion as the ignition-interlock." DOT, Proposed Rule, *Occupant Crash Protection* (March 24, 1977), JA at 146.

In the Secretary's order itself, public reaction is mentioned in neither the "Discussion of Issues" nor in the section on "Other Considerations."<sup>8</sup> Adams Decision, Appendix F at 52-75, 75-78. It appears *only* in the Secretary's discussion of the "History of Standard No. 208." Appendix F at

<sup>8</sup> The court stated that, on the issues of air bag cost and maintenance, the Secretary "explicitly discussed the relationship between the revised Standard and public attitudes." Opinion at 16. This is erroneous. The cited discussions of cost and maintenance do not contain a single reference to public attitudes, let alone any explicit discussion of the relationship between those attitudes and the standard. See Adams Decision, Appendix F at 60-63, 67.

The court also stated that the Secretary considered public reaction by allowing for some willful deactivation of air bags when he projected a 98% "usage" rate for the device. Opinion at 17 n.61 and accompanying text. The record makes clear that the 98% figure is not a "usage" rate at all; it is an allowance for air bags which are either unreliable or which have not been replaced after previously deploying. C. Cooke, NHTSA, *Usage of Occupant Restraint Systems* (July, 1976), JA at 447. In projecting air bag benefits, DOT made no allowance whatsoever for willful deactivation of the devices, despite the widespread fear of inadvertent deployment expressed in the thousands of letters received by DOT opposing the rule. Over one hundred letters contained explicit statements of intent to deactivate air bags if they were mandated. JA at 1294, 1298-1419A, 1422-41.

48-52. Public reaction was thus not even an issue during the rulemaking; it was a closed matter predetermined by Secretary Adams at the outset of the proceeding.<sup>9</sup>

Given Secretary Adams' claim that public reaction could not legally be considered, together with his prejudgment of what that reaction would be in any case, there was no reason during the ensuing comment period for anyone to seriously treat any aspect of public reaction to passive restraints—whether, for example, widespread deactivation of air bags would occur due to fear of inadvertent deployment, or whether the public would hold on to their used cars rather than purchase cars manufactured under the mandate. The court's affirmance of the Secretary's order in spite of this requires it to speculate as to what the record would have contained had the proceeding not been so tainted and as to what decision the Secretary would have made on the basis of such a record. Yet in a similar instance the court of appeals has stated that it "cannot be sure that further and ultimately convincing public criticism ... would not have been forthcoming had it been invited by the Agency." *Weyerhaeuser Co. v. Costle*, 590 F.2d at 1031 (footnote omitted).

By engaging in such speculation, the court violates the basic limitation on judicial review of agency action which it itself once set forth:

"[T]he limited ability of a court to assume, as a judicial function, *even for the purpose of affirmation*, the distinctive discretion assigned to the

<sup>9</sup> The Secretary's prejudgment thus raises a serious due process question as to the fairness of the decision making process itself. See *Association of Nat'l Advertisers, Inc. v. Federal Trade Commission*, 460 F. Supp. 966 (D.D.C. 1978), disqualifying an agency commissioner on the ground that he prejudged issues of fact.

agency." *Braniff Airways, Inc. v. Civil Aeronautics Board*, 379 F.2d 453 (D.C. Cir. 1967) (emphasis added).

As this Court has stated:

"For purposes of affirming no less than reversing its orders, an appellate court cannot intrude upon the domain which Congress has exclusively entrusted to an administrative agency." *Securities and Exchange Commission v. Chenery Corp.*, 318 U.S. at 88.

## CONCLUSION

The court of appeals stated that in reviewing the Secretary's order:

"[t]he paramount objective is to see whether the agency, given an essentially legislative task to perform, has carried it out in a manner calculated to negate the dangers of arbitrariness and irrationality in the formulation of rules for general application in the future." Opinion at 11, quoting *Automotive Parts & Accessories Association v. Boyd*, 407 F.2d 330, 338 (D.C. Cir. 1968).

On an issue of life and death proportions, an agency entrusted with the public safety concealed the one study which indicated how badly its predictions were faring in the real world. Few actions could have been more calculated to insure arbitrariness and irrationality in this rulemaking.

For this reason and for the other reasons set forth above, a writ of certiorari should issue to review the judgment and opinion of the Court of Appeals for the District of Columbia Circuit.

Respectfully submitted,

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May, 1979

(Appendices Follow)

**Appendices**

APPENDIX A

**United States Court of Appeals**

FOR THE DISTRICT OF COLUMBIA CIRCUIT

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No. 77-1797

PACIFIC LEGAL FOUNDATION *et al.*, PETITIONERS

v.

DEPARTMENT OF TRANSPORTATION, RESPONDENT

---

No. 78-1034

RALPH NADER AND PUBLIC CITIZEN, PETITIONERS

v.

BROCK ADAMS, Secretary of Transportation,  
RESPONDENT

FORD MOTOR COMPANY, INTERVENOR

---

Petitions for Review of an Order  
of the Department of Transportation

---

Argued November 21, 1978

Decided February 1, 1979

*Sam Kazman*, with whom *Ronald A. Zumbun*, *Robert K. Best*, *Raymond M. Momboisse*, *John H. Findley*, *Albert Ferri, Jr.*, and *Donald C. Simpson* were on the brief, for petitioners *Pacific Legal Foundation et al.*

*Alan B. Morrison*, with whom *Thomas K. Wilka* was on the brief, for petitioners *Ralph Nader et al.*

*Paul Blankenstein*, Attorney, Department of Justice, with whom *Barbara Allen Babcock*, Assistant Attorney General, *Joseph J. Levin, Jr.*, Chief Counsel, and *David W. Allen*, Assistant Chief Counsel, National Highway Traffic Safety Administration, and *Leonard Schaitman*, Attorney, Department of Justice, were on the brief, for respondents *Brock Adams* and Department of Transportation.

*John H. Pickering*, with whom *William R. Perlik*, *William J. Perlstein*, and *Donald C. Langevoort* were on the brief, for intervenor *Ford Motor Company*.

Before *WRIGHT*, Chief Judge, *WILKEY*, Circuit Judge and *FLANNERY*,\* District Judge.

Opinion for the court filed by Chief Judge *WRIGHT*.

*WRIGHT*, Chief Judge: Like *Scylla* and *Charybdis*, the petitioners in these two cases challenge from opposite sides Motor Vehicle Safety Standard 208, which requires "passive restraints," such as automatic seatbelts or airbags, in all passenger cars sold in this country after September 1, 1983.<sup>1</sup> In No. 77-1797 petitioners argue that there is insufficient empirical support for Standard 208, and that the Secretary of Transportation (Secretary) violated the Motor Vehicle Safety Act of 1966 (Safety

\* Of the United States District Court for the District of Columbia, sitting by designation pursuant to 28 U.S.C. § 292(a) (1976).

<sup>1</sup> For a description of passive seatbelts and airbags, see text at notes 6-8 *infra*.

Act)<sup>2</sup> by failing to consider public reaction to passive restraints and by ignoring potential hazards posed by them. Petitioners in No. 78-1034, in contrast, insist that the Secretary improperly delayed implementation of the Standard and lacked good cause for permitting car manufacturers to introduce passive restraints gradually, rather than requiring full compliance by the effective date. We find that the Secretary acted within his statutory authority and validly issued the passive restraint order under his rulemaking powers.

# I

After the "first collision" between an automobile and an external object, passenger restraint systems protect against the "second collision" between vehicle occupants and the interior of the car.<sup>3</sup> In 1967 the Secretary of Transportation issued the original Standard 208, requiring seatbelts in all passenger cars to reduce damages from the second collision.<sup>4</sup> By July 1969, however, the Depart-

<sup>2</sup> National Traffic & Motor Vehicle Safety Act of 1966, Pub. L. No. 89-563, 80 STAT. 718.

<sup>3</sup> The Senate Report on the Safety Act emphasized the importance of the second collision:

The "second collision"—the impact of the individual within the vehicle against the steering wheel, dashboard, windshield, etc.—has been largely neglected. The committee was greatly impressed by the critical distinction between the causes of the accident itself and causes of the resulting death or injury. \* \* \*

S. Rep. No. 1301, 89th Cong., 2d Sess. 3 (1966). To reduce injuries from the second collision, dashboards have been padded and collapsible steering columns have been introduced.

<sup>4</sup> 32 FED. REG. 2408, 2415 (Feb. 3, 1967). The standard was issued under 15 U.S.C. § 1392(a) (1976):

The Secretary shall establish by order appropriate Federal motor vehicle safety standards. Each such Federal motor vehicle safety standard shall be practicable, shall meet the need for motor vehicle safety, and shall be stated in objective terms.

ment of Transportation (DOT) concluded that the level of seatbelt use was far too low to reduce traffic injuries to an acceptable level.<sup>5</sup> Consequently, DOT sought to develop "passive restraints" that would protect car occupants automatically. Two currently available systems protect against injuries from the second collision without requiring independent action by motorists. "Passive seatbelts," which function like shoulder belts when in position, deploy around front seat occupants as they enter the car and close the doors, but are largely restricted to use in cars with bucket seats.<sup>6</sup> Airbags are cushions stored

<sup>5</sup> 34 FED. REG. 11148 (July 1, 1969) (notice of proposed rulemaking):

The principal disadvantage of safety belts is that only a very low percentage of the motoring population \* \* \* presently takes advantage of the life-saving restraint protection they afford.

Current use of so-called "active" belts, which require action by the occupant to fasten them, is estimated at about 20%. DOT, Final Rule (Occupant Restraint Systems) (July 5, 1977) at 4, 42 FED. REG. 34289, 34290, Joint Appendix (JA) 156, 159 (Decision by Secretary Adams Revising Standard 208) (hereinafter cited as *Adams Decision*). See note 53 *infra*. The American public's unwillingness to wear seatbelts persists despite more than two million traffic deaths in this country since the automobile was introduced. S. Rep. No. 481, 95th Cong., 1st Sess. 2-3 (1977) (quoting Senator Bentsen). It is estimated that one American dies in a traffic accident every eleven minutes. *Id.*

<sup>6</sup> Passive belts are attached to the upper rear corner of the door and the center of the floor of the car. When the door is opened the belt swings toward the dashboard to permit entry and returns to position when the door is closed. Because of the connection to the door, passive belts are largely limited to cars with bucket seats, and DOT estimates that passive belts can be installed in only 25% of American cars, DOT, *Environmental Impact Statement: Occupant Crash Protection*, 37, 52 (June 30, 1977), JA 980-981.

under the dashboard that, when triggered by a frontal collision, fill with stored or rapidly generated gas to protect the rider from collision with the car's interior.<sup>7</sup> Both are designed to protect occupants in frontal crashes, so riders must wear lap belts to guard against injury from lateral-impact crashes and roll-overs.<sup>8</sup>

Beginning in May 1970 the agency conducted a lengthy rulemaking proceeding on passenger restraint systems, and in 1972 adopted a rule that established a three-step approach.<sup>9</sup> Between January 1972 and August 1973 new cars would have to be equipped with lap and shoulder belts for front seats, with a warning to go off when the belts were not fastened, and lap belts at other seating positions. From August 1973 to August 1975 new cars would have to provide at least lap and shoulder belts for front seat occupants with an "ignition interlock" system that would prevent the car from starting while those belts were not connected. Finally, after August 1975 new cars would have passive protection for all passengers. The 1972 passive restraint standard, like the rule before us now, was a performance standard. Rather than dictate any particular form of passive protection, the rule established minimum criteria that cars would have to meet.

The 1972 rule foundered both in the courts and in Congress. In December of that year the United States Court of Appeals for the Sixth Circuit ruled that, although "the Agency's decision to require passive restraints is supported by substantial evidence,"<sup>10</sup> its testing pro-

<sup>7</sup> *Adams Decision*, *supra* note 5, at 4, JA 159.

<sup>8</sup> *Id.* at 48, JA 203. Secretary of Transportation, Decision Concerning Motor Vehicle Occupant Crash Protection (Dec. 6, 1976), at 61, JA 60, 120 (hereinafter cited as *Coleman Decision*).

<sup>9</sup> 37 FED. REG. 3911 (Feb. 24, 1972).

<sup>10</sup> *Chrysler Corp. v. Dep't of Transportation*, 472 F.2d 659, 675 (6th Cir. 1972).

cedures did not satisfy the Safety Act's requirement that standards be "objective."<sup>11</sup> The court found that the anthropomorphic dummies used in crash tests had been insufficiently uniform and had not replicated several characteristics of the human body.<sup>12</sup> The ignition interlock system mandated by the second step of the 1972 rule was unaffected by the Sixth Circuit's finding,<sup>13</sup> and briefly increased seatbelt use.<sup>14</sup> By late 1974, however, the nation's irritation at being unable to start a car without fastening the seatbelts drove Congress to ban ignition interlocks and continuous buzzers.<sup>15</sup> That legislation also limited DOT's discretion to amend Standard 208 in the future. If any modification could not be satisfied by a seatbelt system, it would have to be submitted to Congress, which could veto it by concurrent resolution of both houses.<sup>16</sup>

<sup>11</sup> See note 4 *supra* (text of 15 U.S.C. § 1392(a) (1976)).

<sup>12</sup> 472 F.2d at 676-678. The particular problems were that the necks of the dummies could be either stiff or very flexible, and the "force deflection characteristics of the dummy's chest" also varied widely.

<sup>13</sup> *Ford Motor Co. v. Nat'l Highway Traffic Safety Admin.*, 473 F.2d 1241, 1244 (6th Cir. 1973).

<sup>14</sup> The highest level of seatbelt use in interlock-equipped cars was over 60% in 1974, but consumers deactivated many of the interlocks and seatbelt use in those cars quickly fell to 40%. C. COOKE, *USAGE OF OCCUPANT CRASH PROTECTION SYSTEMS 5* (National Highway Traffic Safety Administration (NHTSA) July 1976), JA 441.

<sup>15</sup> Motor Vehicle and Schoolbus Safety Amendments of 1974, Pub. L. No. 93-492, § 109, 88 STAT. 1482 (codified at 15 U.S.C. § 1410b (1976)). The agency dropped the interlock requirement from Standard 208. 39 FED. REG. 38380 (Oct. 31, 1974); *id.* at 42692 (Dec. 6, 1974).

<sup>16</sup> 15 U.S.C. § 1410b (1976).

Despite the demise of the 1972 rule, DOT continued to study passive restraints,<sup>17</sup> and in 1976 then Secretary William Coleman initiated a new rulemaking proceeding on the issue.<sup>18</sup> After hearing public testimony and reviewing written comments, Coleman concluded that passive restraints were technologically and economically feasible and would "provide substantially increased protection to the public in traffic accidents \* \* \*."<sup>19</sup> Nevertheless, because he anticipated public resistance to passive restraints, Coleman did not order their introduction. Instead, he proposed to contract with four automobile manufacturers for production of up to 500,000 cars with passive restraints as a demonstration program to smooth public reception of the new safety systems.<sup>20</sup>

The current Secretary of Transportation, Brock Adams, reopened the passive restraint rulemaking only four months after Coleman's decision.<sup>21</sup> Following another round of written comments and a public hearing, Adams issued the mandatory passive restraint rule now before use.<sup>22</sup> Adams squarely rejected Coleman's view of the

<sup>17</sup> The agency revised the test dummies in response to the Sixth Circuit's *Chrysler* ruling, see note 12 *supra*. 38 FED. REG. 8455 (April 2, 1973); *id.* at 20449 (Aug. 1, 1973). A passive restraint proposal was announced in March 1974, 39 FED. REG. 10271, and extended in August 1975, 40 FED. REG. 33977.

<sup>18</sup> 41 FED. REG. 24070 (June 14, 1976).

<sup>19</sup> *Coleman Decision*, *supra* note 8, at 6, JA 65.

<sup>20</sup> *Id.* at 11-13, JA 70-72.

<sup>21</sup> 42 FED. REG. 15935 (March 24, 1977).

<sup>22</sup> Both Adams and Coleman considered the feasibility of mandatory seatbelt laws, which are in effect in 20 other nations, but concluded that such statutes could not be enacted in this country. *Coleman Decision*, *supra* note 8, at 58-59, JA 117-118; *Adams Decision*, *supra* note 5, at 13-15, JA 168-170.

likely public reaction to passive restraints, which had been based largely on the ignition interlock episode.<sup>23</sup> Adams insisted that the interlock system met with public obloquy because it required affirmative action by the occupant, while passive restraints, by definition, make no such demand.<sup>24</sup> Because passive restraints would not force changes in the public's behavior, Adams concluded, there was no need to wait for a demonstration program to convert public attitudes.

On related issues Adams agreed with Coleman that (1) according to available experimental data and limited field experience, passive restraints could prevent approximately 9,000 deaths and over 100,000 injuries;<sup>25</sup> (2) with these expected benefits reflected in lower insurance premiums, passive restraint systems would not present an unreasonable economic burden for motorists;<sup>26</sup> and (3) possible negative effects, such as accidental deployment of airbags, lower use of lap belts, and possible danger from the gases used in airbags, would be offset by the advantages of passive restraints.<sup>27</sup> The Secretary ordered a "phasing-in" of passive restraint systems. For model year 1982 all new cars with wheelbases above 114 inches

<sup>23</sup> *Coleman Decision*, *supra* note 8, at 11, 56, JA 70, 115.

<sup>24</sup> *Adams Decision*, *supra* note 5, at 8, JA 163.

<sup>25</sup> *Id.* at 53, JA 208. These estimates were derived from experimental data. For serious injuries from frontal crashes, for example, airbags with lap belts were considered .66 effective, meaning such injuries would decline by two thirds, while lap belts alone had a rating of .40. NHTSA, "Explanation of Rulemaking Action (Effectiveness)," 7-10 (July 26, 1977), JA 258-261 (hereinafter cited as *Explanation*). The effectiveness estimates then were multiplied by the expected utilization level of the safety device and by the injuries and fatalities that would otherwise be anticipated.

<sup>26</sup> *Adams Decision*, *supra* note 5, at 21-26, JA 176-181.

<sup>27</sup> *Id.* at 26-34, JA 181-189.

would have to be equipped with full passive restraint systems for front seat occupants. In the following year cars with wheelbases between 100 and 114 inches would have to comply, and all 1984 models would be held to the Standard.<sup>28</sup>

Revised Standard 208 was then submitted to the Congress, where no action was taken to veto it.<sup>29</sup> The Secretary rejected petitions for reconsideration from both groups participating in these cases,<sup>30</sup> and these appeals followed.

## II

Our review proceeds under both the informal rule-making provision of the Administrative Procedure Act (APA)<sup>31</sup> and the substantive sections of the Motor Vehicle Safety Act. The latter statute requires that Motor Vehicle Safety Standards "shall be practicable, shall meet the need for motor vehicle safety, and shall be stated in objective terms."<sup>32</sup> In addition, the Secretary must "con-

<sup>28</sup> *Id.* at 41-42, JA 196-197.

<sup>29</sup> No action was taken by the full House of Representatives. The Consumer Subcommittee of the Senate Committee on Commerce, Science and Transportation held four days of hearings on the Adams ruling, and the full committee issued a report endorsing the new Standard 208. S. Rep. No. 481, *supra* note 5. That report was adopted by the Senate. 123 Cong. Rec. S17016 (daily ed. Oct. 12, 1977).

<sup>30</sup> 42 FED. REG. 61466 (Dec. 5, 1977).

<sup>31</sup> 5 U.S.C. §553 (1976). Section 103(b) of the Safety Act, 15 U.S.C. § 1392(b) (1976), states that the APA "shall apply to all orders establishing, amending, or revoking a Federal motor vehicle safety standard \* \* \*." With respect to occupant crash protection standards promulgated under the congressional review procedures the Act specifically provides that "Section 553 of [the APA] shall apply to such standard[.]" 15 U.S.C. § 1410b(c)(2) (1976).

<sup>32</sup> 15 U.S.C. § 1392(a) (1976).

sider relevant available motor vehicle safety data”<sup>33</sup> and determine the appropriateness of the standard for the type of vehicle covered by it.<sup>34</sup> As applied, these standards can be tested as part of our “thorough, probing, in-depth review” of the record on appeals of informal rulemaking under the APA.<sup>35</sup> Of course, we may not

<sup>33</sup> 15 U.S.C. § 1392(f) (1) (1976).

<sup>34</sup> 15 U.S.C. § 1392(f) (3) (1976).

<sup>35</sup> *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 425 (1971). All parties agree that judicial review in this case is limited to determining whether the promulgation of the safety standards in suit is arbitrary and capricious under 5 U.S.C. § 706(2) (A) (1976). It might be argued, as the Sixth Circuit apparently did in *Chrysler Corp. v. Dep't of Transportation*, *supra* note 10, 472 F.2d at 668, that since the Safety Act requires that “all of the evidence before the agency \* \* \* shall be included in the record” submitted to the reviewing court, 28 U.S.C. § 2112(b) (1976) (referred to by 15 U.S.C. § 1394(a) (1) (1976)), we must apply the “substantial evidence” standard for review of the record underlying agency action. This position is strengthened by the provision in the 1974 Amendments to the Safety Act that the Secretary must hold a public hearing on any proposed passive restraint standard, 15 U.S.C. § 1410b(c) (2) (1976). Thus the action in this case might be seen to trigger the substantial evidence test for cases “reviewed on the record of an agency hearing provided by statute.” 5 U.S.C. § 706(2) (E) (1976).

We do not follow this reasoning because we agree with the emerging consensus of the Courts of Appeals that the distinction between the arbitrary and capricious standard and substantial evidence review is largely semantic, and that “in the review of rules of general applicability made after notice and comment rulemaking, the two criteria do tend to converge.” *Associated Industries of New York State, Inc. v. Dep't of Labor*, 487 F.2d 342, 349-350 (2d Cir. 1973). *See Paccar, Inc. v. Nat'l Highway Traffic Admin.*, 573 F.2d 632, 636 (9th Cir. 1978); *American Public Gas Ass'n v. FPC*, 567 F.2d 1016, 1029 (D.C. Cir. 1977). Since our review in this case, under *Overton Park*, involves a complete examination of the record, we agree with Judge Lumbard that “when an agency engages

substitute our judgment for the agency's. Still, we must determine that the agency action was consistent with its statutory mandate, rational, and not arbitrary. As this court noted in an earlier Safety Act case, a court must decide “whether the agency has performed in accordance with the Congressional purposes.” In that effort

[t]he paramount objective is to see whether the agency, given an essentially legislative task to perform, has carried it out in a manner calculated to negate the dangers of arbitrariness and irrationality in the formulation of rules for general application in the future. \* \* \* [36]

In addition, because the order under review here reversed a prior policy, the agency must provide “an opinion or analysis indicating that the standard is being changed and not ignored, and assuring that it is faithful and not indifferent to the rule of law.”<sup>37</sup>

### III

Petitioners Pacific Legal Foundation *et al.* offer three major reasons for overturning revised Standard 208: (A) that experimental and real-world data do not support the Secretary's findings on the effectiveness of airbags; (B) that the Secretary violated the Safety Act by failing to consider public reaction to the revised Standard; and

in substantive rulemaking, it abuses its discretion (or acts arbitrarily and capriciously) if its actions are not supported by substantial evidence.” *Nat'l Nutritional Foods Ass'n v. Weinberger*, 512 F.2d 688, 705 (2d Cir. 1975) (Lumbard, J., concurring in the result).

<sup>36</sup> *Automotive Parts & Accessories Ass'n v. Boyd*, 407 F.2d 330, 338 (D.C. Cir. 1968). *See Weyerhaeuser Co. v. Costle*, — F.2d —, — (D.C. Cir. No. 76-1674, decided Sept. 5, 1978) (slip op. at 23).

<sup>37</sup> *Columbia Broadcasting System, Inc. v. FCC*, 454 F.2d 1018, 1026 (D.C. Cir. 1971) (footnote omitted).

(C) that the rule ignores collateral dangers to public safety posed by airbags.<sup>38</sup>

#### A. Effectiveness of Passive Restraints

Petitioners concede that seatbelts, including passive belts, are an effective passenger restraint system. They challenge, however, DOT's conclusion that laboratory tests and limited field experience establish the reliability of airbags which, given current technology and the rule before us, would probably have to be installed in 75 percent of American cars.<sup>39</sup> After reviewing the record in this case, we find that the Secretary's decision was rational.

Since this rulemaking began in 1969 DOT has conducted over 2,000 crash tests of airbags, including 188 with human volunteers in the vehicles, 274 with dummies,<sup>40</sup> and a handful with cadavers and baboons.<sup>41</sup> Following these experiments, involving collisions at speeds of up to 50 miles per hour, the agency concluded that if airbags were installed in all cars over 9,000 fatalities and over 100,000 injuries would be averted.<sup>42</sup> When these figures were first released the Secretary conceded that "[s]imulations can, of course, never duplicate \* \* \* real-

<sup>38</sup> In reviewing these claims we refer to both the ruling issued directly by Secretary Adams and the *Explanation*, *supra* note 25, issued by NHTSA three weeks later.

<sup>39</sup> See text and note at note 6 *supra*.

<sup>40</sup> About three fifths of the tests with dummies (156) took place after the Sixth Circuit's *Chrysler* ruling, see text and notes at notes 12 & 17 *supra*, with dummies modified to meet that court's objections. Structures Research Division, "Restraint System Testing" (Sept. 23, 1977), JA 1135-1152.

<sup>41</sup> *Id.*

<sup>42</sup> See *Coleman Decision*, *supra* note 8, at 40, JA 99; *Adams Decision*, *supra* note 5, at 53, JA 208.

world collisions and thus there is greater uncertainty in the accuracy of the estimates \* \* \*." Nevertheless, carefully conducted tests can provide the basis for a standard under the Safety Act. As the Sixth Circuit acknowledged in *Chrysler*, the statute authorizes safety standards that push the automobile industry beyond present engineering capabilities,<sup>43</sup> and such standards could not be developed without heavy reliance on experimental simulations. A necessary corollary to this position is that DOT must monitor closely the road experience with any standard based on experimental data and make needed modifications.<sup>45</sup>

Petitioners also insist that the Secretary's conclusion on airbag effectiveness is contradicted by experience with the 12,000 airbag cars currently in operation in this country.<sup>46</sup> Indeed, there have been more fatalities in frontal

<sup>43</sup> *Coleman Decision*, *supra* note 8, at 39, JA 98.

<sup>44</sup> *Chrysler Corp. v. Dep't of Transportation*, *supra* note 10, 472 F.2d at 672-673.

In summary, the Agency is empowered to issue safety standards which require improvements in existing technology or which require the development of new technology, and it is not limited to issuing standards based solely on devices already fully developed. \* \* \*

*Id.* at 673.

<sup>45</sup> DOT has expressed its intention to conduct an "intensive monitoring program to oversee the implementation plans \* \* \*." *Adams Decision*, *supra* note 5, at 41, JA 196. The agency's failure to respond to negative field results was part of the basis for the Ninth Circuit's recent finding that a truck brake standard was not "practicable." *Paccar, Inc. v. NHTSA*, *supra* note 35.

<sup>46</sup> The American airbag "fleet" consists of 10,281 cars produced on assembly lines, primarily large General Motors cars. The others are "special manufacturers' test vehicles" used only in government and business fleets. DOT, "An Analysis of Fatalities in Cars Equipped with Air Bags" (Oct. 3, 1978) at 1 (hereinafter cited as *Fatalities*).

accidents involving airbag cars than the statistical projections from experimental data would have indicated.<sup>47</sup> Nevertheless, in view of the relatively small sample involved,<sup>48</sup> and the extraordinary nature of several of the accidents,<sup>49</sup> this variation does not undermine the agency's conclusion that airbags are effective. Moreover, airbags have been very effective in reducing or preventing major injuries.<sup>50</sup>

<sup>47</sup> Five deaths have occurred in airbag cars in frontal crashes. By the agency's estimates of airbag effectiveness, no more than one fatality would have been expected. DOT Office of Statistics and Analysis, "Statistical Analysis of Air Bag Deaths" at 5-6 (April 9, 1976). These figures may not undermine the agency's estimates of airbag effectiveness, however. See note 49 *infra*.

<sup>48</sup> The data are drawn from over 200 crashes. *Fatalities*, *supra* note 46, at 1. A leading study of seatbelt effectiveness, in contrast, analyzed over 15,000 towaways. NHTSA, "A Statistical Analysis of Seat Belt Effectiveness in 1973-1975 Model Cars Involved in Towaway Crashes" 63 (Sept. 1976), JA 477. With a small sample, statistical projections of probabilities are less reliable. See R. BEALS, STATISTICS FOR ECONOMISTS 161, 187 (1972).

<sup>49</sup> In one an infant lying unrestrained on the front seat of the car was killed; another involved a head-on crash between two cars with a combined speed exceeding 100 miles per hour; the driver's side of the car was crushed by a tractor-trailer in a third fatal crash. *Fatalities*, *supra* note 46, at 1. It is doubtful that any passenger restraint system could have prevented those deaths.

<sup>50</sup> The Secretary estimated that for the airbag fleet between 1973 and 1975, 60 injuries would have been expected in frontal crashes if the airbags did not deploy. Only 29 injuries were reported, "indicating an effectiveness factor of 0.52." *Adams Decision*, *supra* note 5, at 19, JA 174. The study attempted to account for possible bias resulting from the makeup of the airbag fleet (large, new cars) and from incomplete reporting of accidents. *Id.* at 18-19, JA 173-174.

The Secretary also reviewed several submissions by commenters to the rulemaking proceedings that presented con-

## B. Public Reaction

Petitioners assert that the Secretary violated his statutory mandate by refusing to consider public reaction to his decision. The importance of popular response, they contend, can be seen in the Safety Act's requirements that a safety standard be "practicable."<sup>51</sup> The Secretary stated in his order, however, that "public acceptance or rejection of passive restraints is not one of the statutory criteria which the Department is charged by law to apply in establishing standards."<sup>52</sup> Although we agree with petitioners' view of the requirements of the Safety Act, we believe that the Secretary did take public reaction into account and satisfactorily explained his conclusion that widespread public resistance to passive restraints is unlikely.

Much as economic analysis must evaluate both supply and demand conditions, motor vehicle safety standards cannot be considered practicable unless we know both that the needed production capability is within reach and that motorists will avail themselves of the safety system. Indeed, the protracted effort to install passive restraints has been dictated by the public's steadfast refusal to use seatbelts voluntarily.<sup>53</sup> We believe that the agency cannot

flicking estimates of airbag effectiveness based on both empirical and field data. *Id.* at 16-18, JA 171-173. After criticizing the methodologies used in the submissions, he reasonably concluded that the variance of predictions reflected the inherent uncertainty of such projections, but that, since some estimates were higher than the agency's and some were lower, there was no cause for rejecting DOT's projections.

<sup>51</sup> 15 U.S.C. § 1392(a) (1976).

<sup>52</sup> *Adams Decision*, *supra* note 5, at 8, JA 163.

<sup>53</sup> Although combined lap and shoulder belts offer protection roughly equivalent to passive restraints, see *Explanation*, *supra* note 25, at 11, JA 262, voluntary usage is currently estimated at 16% for combined lap/shoulder belts, with an ad-

fulfill its statutory responsibility unless it considers popular reaction. Without public cooperation there can be no assurance that a safety system can "meet the need for motor vehicle safety."<sup>54</sup> And it would be difficult to term "practicable" a system, like the ignition interlock, that so annoyed motorists that they deactivated it.

Despite the Secretary's claim that he need not consider the response to the new standard, he adequately justified his action in terms of the anticipated public reaction. As noted earlier, Adams distinguished the ignition interlock affair from passive restraints on the basis of the nature of the intrusion on the individual. Passive restraints do not require independent action by passengers to activate them.<sup>55</sup> In the 1976 decision Secretary Coleman characterized his estimate of public resistance as "a matter of judgment."<sup>56</sup> In our view Secretary Adams provided a sufficient explanation why his judgment differed from his predecessor's.<sup>57</sup> And on several other issues, including airbag cost<sup>58</sup> and maintenance,<sup>59</sup> Adams explicitly discussed the relationship between the revised Standard and public attitudes.

Petitioners raise two related points. First, they argue that the Secretary's calculations of expected benefits from

ditional 4% wearing only lap belts. C. COOKE, *supra* note 14, at 4, 11, JA 440, 447. See *Chrysler Corp. v. Dep't of Transportation*, *supra* note 10, 472 F.2d at 674.

<sup>54</sup> 15 U.S.C. § 1392(a) (1976).

<sup>55</sup> Passive belts, of course, do involve somewhat more of an intrusion than do airbags, which are tucked away in the dashboard. Still, the observed use rate for passive belts is quite high. See text and note at note 60 *infra*.

<sup>56</sup> *Coleman Decision*, *supra* note 8, at 6, JA 65.

<sup>57</sup> See text at notes 23-24 *supra*.

<sup>58</sup> *Adams Decision*, *supra* note 5, at 21-26, JA 176-181.

<sup>59</sup> *Id.* at 31-32, JA 186-187.

passive restraints fail to take into account the possible deactivation of systems by individual motorists, as was common with the ignition interlock. If Secretary Adams correctly anticipates minimal popular resistance to passive restraints, petitioners' argument has no force. In addition, experience with approximately 65,000 cars equipped with passive seatbelts, which are admittedly more intrusive than airbags, indicates a low deactivation rate.<sup>60</sup> We see no basis here for disturbing the DOT rule, especially since the agency's injury-reduction estimates were revised downward by projecting less-than-total compliance with Standard 208.<sup>61</sup>

Second, petitioners contend that installation of passive restraints may deter use of lap belts, noting that even if passive restraints are in place lap belts are needed to protect motorists in nonfrontal collisions. A drop in lap belt use would result in higher fatalities and injuries. DOT defends its estimate that lap belt use will continue at the 20 percent level, citing an agency study concluding that with no further need for more intrusive shoulder belts, lap belt use would actually increase to 26 percent.<sup>62</sup>

<sup>60</sup> Approximately 80% of the passive belts were in use. *Explanation*, *supra* note 25, at 15, JA 266.

<sup>61</sup> The agency projected passive belt usage of 60% and airbag usage of 98%. *Coleman Decision*, *supra* note 8, at A-7, JA 132.

<sup>62</sup> C. COOKE, *supra* note 14, at 11, JA 447. In addition, the agency argues in its brief that if lap belt use dropped to zero there would still be a net reduction in deaths and injuries from accidents. This claim derives from calculating the expected injury level with airbags but not lap belts, and adding those injuries that are currently prevented by use of lap belts alone. The total, the agency contends, is less than the present injury level.

Petitioners point to nothing in the record to refute the agency's estimates.<sup>63</sup>

### C. Collateral Dangers

Airbags may also present collateral dangers to the public, petitioners argue, which are not justified by the expected benefits from Standard 208. We note at the outset that the Safety Act charges the Secretary with authority to balance present injuries against possible risks posed by safety equipment. As this court has observed:

The [agency] must of necessity consider many variables, and make "trade-offs" between various desiderata in deciding upon a particular standard for auto safety. \* \* \* [64]

The major danger associated with airbags is inadvertent deployment that might cause the driver to lose control of the car.<sup>65</sup> There is evidence, however, that such deployments do not present a substantial hazard. In road experience three such incidents have occurred, and none

<sup>63</sup> Petitioners have submitted to this court several DOT publications on airbags that suggest that occupants will no longer need to wear lap belts. See DOT, "Passive Vehicle Occupant Restraints" at 1 (1977), JA 1123 (passive restraints "are systems that protect automobile occupants from collision injuries automatically, without the need to fasten belts or to take any other action"). Such statements may be misleading, and official statements on passive restraints must emphasize the continuing need to use lap belts.

<sup>64</sup> *Automotive Parts & Accessories Ass'n v. Boyd*, *supra* note 36, 407 F.2d at 342.

<sup>65</sup> Several anticipated hazards, such as possible hearing loss from the noise of the bags inflating or damage resulting from the impact with eyeglasses or smoking materials, have proved insubstantial in testing. *Adams Decision*, *supra* note 5, at 31, JA 186.

caused a collision or injury,<sup>66</sup> while tests with human volunteers have shown little loss of control by drivers.<sup>67</sup> Moreover, the agency is optimistic that the causes of the three inadvertent deployments are understood and can be remedied,<sup>68</sup> so there is some prospect of reducing their likelihood in the future. Even without such improvements, DOT gauges at one in 200 the chance that in a lifetime an individual would experience an inadvertent deployment as an occupant of a car.<sup>69</sup>

Rapidly inflating airbags also may injure out-of-position passengers in the front seat, especially children. New methods of gas generation, however, permit an initially slower inflation, with the aim of more gently moving the occupant back from the dashboard and out of harm's way.<sup>70</sup>

Finally, the chemical used to generate the gas, usually sodium azide, may present a danger in its own right, either during the car's lifetime or upon its demolition for scrap. But placement of the carefully sealed chemical cannister behind the dashboard should be sufficiently remote to prevent most accidents with it, and the cannister

<sup>66</sup> *Explanation (Inadvertent Activation)*, *supra* note 25, at 2, JA 269.

<sup>67</sup> *Id.* The test used male and female drivers between the ages of 18 and 72. The major flaw of the test is that the drivers were told something unexpected would happen while they were in the car, so their alertness was probably higher than normal. Nevertheless, the tests demonstrate that the force of airbag inflation can be weathered by many drivers.

<sup>68</sup> *Adams Decision*, *supra* note 5, at 29-30, JA 184-185.

<sup>69</sup> *Id.*

<sup>70</sup> One out-of-position passenger—an infant—died in an airbag car in a frontal crash, but that death probably could not have been prevented by any passenger restraint system. See note 49 *supra*.

could be removed prior to shredding of the car, as is currently done with batteries and gas tanks.<sup>71</sup>

In view of these circumstances, we cannot conclude that the Secretary abused his discretion in assessing the trade-offs between the expected benefits and the potential dangers of airbags.<sup>72</sup>

#### IV

Petitioners Nader *et al.* present two major challenges to the delayed implementation of Standard 208: (A) the Safety Act does not authorize either the delay until the 1982 model year or the ensuing phase-in program on the basis of wheelbase size; and (B) the delay and phase-in were improperly adopted to avoid congressional rejection of the standard under the arguably unconstitutional one-house veto provision of the 1974 Amendments to the Safety Act.

##### A. Delay and Phase-In

Petitioners argue first that the Secretary did not satisfy the Safety Act's requirement that he demonstrate

<sup>71</sup> *Adams Decision*, *supra* note 5, at 46, JA 201.

<sup>72</sup> Petitioners also assert that the passive restraint rule violates the individual's right to privacy. We find no basis for this contention. Passive restraints protect not only the owner or driver of the car, but also any passengers, and thus involve more than a purely individual concern. Also, by their very nature passive restraints involve no intrusion on an intimate area of activity, as in cases concerning the family or procreation decisions where courts have defended privacy interests. *See, e.g., Roe v. Wade*, 410 U.S. 113 (1973). Revised Standard 208 is a reasonable exercise of the Government's authority to guard our citizen's health and safety. *See Simon v. Sargent*, 346 F.Supp. 277 (D. Mass.) (three-judge court), *aff'd*, 409 U.S. 1020 (1972) (upholding state mandatory helmet law for motorcyclists); *Love v. Bell*, 465 P.2d 118 (Colo. 1970) (same); *Bisenius v. Karns*, 42 Wis.2d 42, 165 N.W.2d 377, *appeal dismissed for lack of substantial federal question*, 395 U.S. 709 (1969) (same).

"good cause" for not implementing the new safety standard within one year of issuance.<sup>73</sup> They contend that "mere" economic hardship cannot constitute such cause when the statute's central goal—greater vehicle safety—is at stake. In his decision the Secretary explained the delay until model year 1982 as an attempt to assure "orderly implementation" of the new standard.<sup>74</sup> The four-year lead-in period, according to the Secretary, grants car and airbag manufacturers breathing room to gear up production.<sup>75</sup> Moreover, by encouraging voluntary production of cars with passive restraints before the 1982 models the Secretary hopes to increase the public's familiarity with the systems and facilitate their eventual acceptance.<sup>76</sup>

We cannot agree with petitioners on this point. Although the time limit placed on implementation of new safety standards reflects Congress' conviction that safety must be a high national priority, Congress also provided the "good cause" exception along with the general requirement of practicability. When dealing with a "technology-forcing" rule like Standard 208, the agency must con-

<sup>73</sup> 15 U.S.C. § 1392(c) (1976). The law provides that safety standards shall take effect

not \* \* \* sooner than one hundred and eighty days or later than one year from the date such order is issued, unless the Secretary finds, *for good cause shown*, that an earlier or later effective date is in the public interest, and publishes his reasons for such finding.

*Id.* (emphasis added).

<sup>74</sup> *Adams Decision*, *supra* note 5, at 40, JA 195.

<sup>75</sup> Current production of sodium azide, the primary gas for inflating airbags, will have to be increased approximately tenfold to equip the annual output of cars in this country. *Id.* at 38, JA 193. Significant engineering and design problems arise with airbags as well, especially in small cars. *See text at note 78 infra.*

<sup>76</sup> *Adams Decision*, *supra* note 5, at 40-41, JA 195-196.

sider the abilities of producers to comply with the new requirement and of the public to grasp the need for the change. On this record, these concerns were good cause for the delay in implementation.

Petitioners also insist that the Secretary lacked statutory authority to schedule introduction of airbags according to the size of a car's wheelbase. We find no basis for this protest in the statute. Section 103(f)(3) of the Safety Act provides that the Secretary shall

consider whether any such proposed standard is reasonable, practicable and appropriate for the particular *type* of motor vehicle or item of motor vehicle equipment for which it is prescribed[.]<sup>77</sup>

Petitioners, relying on "common sense," interpret "type" as referring to distinctions between vehicle functions, such as passenger cars and trucks, not vehicle size. We view the term as including both distinctions, in the effort to provide the Secretary with sufficient flexibility to tailor safety standards to engineering realities. In this instance it will be far easier to install airbags in larger cars than smaller, simply because there is more room for the system in the larger cars.<sup>78</sup> The Secretary reasonably decided on a phase-in because of the difficulty of providing airbags in smaller cars and the likely usefulness to that endeavor of experience with larger cars.<sup>79</sup>

<sup>77</sup> 15 U.S.C. § 1392(f)(3) (1976) (emphasis added).

<sup>78</sup> The introduction of airbags in small cars will require redesigning of the instrument panel, glove compartment, and air conditioning system, and possibly even of the wheelbase and engine compartment. *Adams Decision*, *supra* note 5, at 36, JA 191.

<sup>79</sup> Petitioners emphasize that small cars provide the least crash protection to occupants and, accordingly, present the greatest need for passive restraints. Thus they argue that the implementation timetable is unfair because it leaves small car riders without passive restraints longer. Although we share petitioners' concern for small car riders, there is a rational basis for the Secretary's schedule, so we have no basis for upsetting his decision on this point.

### B. Legislative Veto

Petitioners allege that Standard 208 should not stand because the prospect of the one-house veto established by the 1974 amendments distorted the Secretary's decision on the implementation schedule. As we have discussed, substantial basis exists in the record for the Secretary's timetable for passive restraints. Petitioners' assertion is supported only by an arguable inference from one event in the record.<sup>80</sup> In the absence of concrete evidence, we must accept the substantial reasons offered by the Secretary for his decision.<sup>81</sup>

Petitioners also claim that revised Standard 208 was not covered by the legislative veto provision because a "belt system" can satisfy its requirements.<sup>82</sup> Thus they argue that Standard 208 should not have been submitted to Congress at all. We decline to reach this statutory interpretation question. Even if we assume that the Secretary was not compelled to send the standard to Congress, we can discern no consequences of his action that would constitute cause to vacate the standard.

Finally, petitioners challenge the constitutionality of the legislative veto provision. Following this court's decision in *Clark v. Valeo*,<sup>83</sup> we will not review this con-

<sup>80</sup> Petitioners cite only the Secretary's failure to follow the recommendation of NHTSA for full implementation by September 1, 1980. That the Secretary did not adopt that suggestion is scarcely ground for inferring that "political realities," rather than technological concerns, dictated his action.

<sup>81</sup> See *Camp v. Pitts*, 411 U.S. 138, 143 (1973); *Nat'l Courier Ass'n v. Board of Governors of FRS*, 516 F.2d 1229, 1242 (D.C. Cir. 1975) ("Unless he has left no other record of the reasons for his decision, the mental processes of an administrator may not be probed.").

<sup>82</sup> See 15 U.S.C. § 1410b(3)(A) (1976).

<sup>83</sup> 559 F.2d 642, 649 (D.C. Cir.) (*en banc*) (*per curiam*), *aff'd*, 431 U.S. 950 (1977).

tention in a case where Congress has not exercised the veto and where there has been no showing of direct congressional influence over the rulemaking process. In such circumstances there is serious question whether a "case or controversy," as required by Article III of the Constitution, is presented.

Accordingly, the Secretary's order is

*Affirmed.*

# APPENDIX B

## United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

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No. 77-1797  
September Term, 1978

PACIFIC LEGAL FOUNDATION *et al.*,  
Petitioners

v.

DEPARTMENT OF TRANSPORTATION,  
Respondent

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78-1034

RALPH NADER AND PUBLIC CITIZEN,  
Petitioners

v.

BROCK ADAMS, SECRETARY OF TRANSPORTATION,  
Respondent

FORD MOTOR COMPANY,  
Intervenor

**PETITIONS FOR REVIEW OF AN ORDER OF THE  
DEPARTMENT OF TRANSPORTATION**

BEFORE: WRIGHT, Chief Judge, WILKEY, Circuit  
Judge and FLANNERY\*, United States  
District Court Judge for the District of  
Columbia

**J U D G M E N T**

These causes came on to be heard on petitions for review of an order of the Department of Transportation and were argued by counsel. On consideration of the foregoing, it is

ORDERED AND ADJUDGED by this Court, that the order of the Department of Transportation under review herein is hereby affirmed, in accordance with the opinion of this Court filed herein this date.

*Per Curiam*

For the Court:

GEORGE A. FISHER  
Clerk

Date: February 1, 1979

Opinion for the Court filed by Chief Judge Wright.

\* Sitting by designation pursuant to 28 U.S.C. § 292(a).

**APPENDIX C**

**Relevant Provisions of the Administrative Procedure Act**

5 U.S.C. § 553

**§ 553. Rule making**

(a) This section applies, according to the provisions thereof, except to the extent that there is involved—

(1) a military or foreign affairs function of the United States; or

(2) a matter relating to agency management or personnel or to public property, loans, grants, benefits, or contracts.

(b) General notice of proposed rule making shall be published in the Federal Register, unless persons subject thereto are named and either personally served or otherwise have actual notice thereof in accordance with law. The notice shall include—

(1) a statement of the time, place, and nature of public rule making proceedings;

(2) reference to the legal authority under which the rule is proposed; and

(3) either the terms or substance of the proposed rule or a description of the subjects and issues involved.

Except when notice or hearing is required by statute, this subsection does not apply—

(A) to interpretative rules, general statements of policy, or rules of agency organization, procedure, or practice; or

(B) when the agency for good cause finds (and incorporates the finding and a brief statement of

reasons therefor in the rules issued) that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest.

(c) After notice required by this section, the agency shall give interested persons an opportunity to participate in the rule making through submission of written data, views, or arguments with or without opportunity for oral presentation. After consideration of the relevant matter presented, the agency shall incorporate in the rules adopted a concise general statement of their basis and purpose. When rules are required by statute to be made on the record after opportunity for an agency hearing, sections 556 and 557 of this title apply instead of this subsection.

(d) The required publication or service of a substantive rule shall be made not less than 30 days before its effective date, except—

(1) a substantive rule which grants or recognizes an exemption or relieves a restriction;

(2) interpretative rules and statements of policy;  
or

(3) as otherwise provided by the agency for good cause found and published with the rule.

(e) Each agency shall give an interested person the right to petition for the issuance, amendment, or repeal of a rule. Pub.L. 89-554, Sept. 6, 1966, 80 Stat. 383.

## 5 U.S.C. § 706

### § 706. Scope of review

To the extent necessary to decision and when presented, the reviewing court shall decide all relevant questions of law, interpret constitutional and statutory

provisions, and determine the meaning or applicability of the terms of an agency action. The reviewing court shall—

(1) compel agency action unlawfully withheld or unreasonably delayed; and

(2) hold unlawful and set aside agency action, findings, and conclusions found to be—

(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;

(B) contrary to constitutional right, power, privilege, or immunity;

(C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right;

(D) without observance of procedure required by law;

(E) unsupported by substantial evidence in a case subject to sections 556 and 557 of this title or otherwise reviewed on the record of an agency hearing provided by statute; or

(F) unwarranted by the facts to the extent that the facts are subject to trial de novo by the reviewing court.

In making the foregoing determinations, the court shall review the whole record or those parts of it cited by a party, and due account shall be taken of the rule of prejudicial error. Pub.L. 89-554, Sept. 6, 1966, 80 Stat. 393.

## APPENDIX D

### Relevant Provisions of the National Traffic and Motor Vehicle Safety Act of 1966, as Amended

15 U.S.C. §§ 1381, *et seq.*

#### § 1381. Congressional declaration of purpose

Congress hereby declares that the purpose of this chapter is to reduce traffic accidents and deaths and injuries to persons resulting from traffic accidents. Therefore, Congress determines that it is necessary to establish motor vehicle safety standards for motor vehicles and equipment in interstate commerce; to undertake and support necessary safety research and development; and to expand the national driver register.

#### § 1391. Definitions

As used in this subchapter—

(1) "Motor vehicle safety" means the performance of motor vehicles or motor vehicle equipment in such a manner that the public is protected against unreasonable risk of accidents occurring as a result of the design, construction or performance of motor vehicles and is also protected against unreasonable risk of death or injury to persons in the event accidents do occur, and includes nonoperational safety of such vehicles.

(2) "Motor vehicle safety standards" means a minimum standard for motor vehicle performance, or motor vehicle equipment performance, which is practicable, which meets the need for motor vehicle safety and which provides objective criteria.

(3) "Motor vehicle" means any vehicle driven or drawn by mechanical power manufactured primarily for

use on the public streets, roads, and highways, except any vehicle operated exclusively on a rail or rails.

\* \* \* \*

#### § 1392. Motor vehicle safety standards—Establishment

(a) The Secretary shall establish by order appropriate Federal motor vehicle safety standards. Each such Federal motor vehicle safety standard shall be practicable, shall meet the need for motor vehicle safety, and shall be stated in objective terms.

#### Applicability of Administrative Procedure Act

(b) The Administrative Procedure Act shall apply to all orders establishing, amending, or revoking a Federal motor vehicle safety standard under this subchapter.

#### Effective date of orders

(c) Each order establishing a Federal motor vehicle safety standard shall specify the date such standard is to take effect which shall not be sooner than one hundred and eighty days or later than one year from the date such order is issued, unless the Secretary finds, for good cause shown, that an earlier or later effective date is in the public interest, and publishes his reasons for such finding.

\* \* \* \*

#### Amendment and revocation of standards

(e) The Secretary may by order amend or revoke any Federal motor vehicle safety standard established under this section. Such order shall specify the date on which such amendment or revocation is to take effect which shall not be sooner than one hundred and eighty days or later than one year from the date the order is issued, unless the Secretary finds, for good cause shown, that an earlier or later effective date is in the public interest, and publishes his reasons for such finding.

### **Factors to be considered in prescribing standards**

(f) In prescribing standards under this section, the Secretary shall—

(1) consider relevant available motor vehicle safety data, including the results of research, development, testing and evaluation activities conducted pursuant to this chapter;

(2) consult with the Vehicle Equipment Safety Commission, and such other State or interstate agencies (including legislative committees) as he deems appropriate;

(3) consider whether any such proposed standard is reasonable, practicable and appropriate for the particular type of motor vehicle or item of motor vehicle equipment for which it is prescribed; and

(4) consider the extent to which such standards will contribute to carrying out the purposes of this chapter.

\* \* \* \*

### **§ 1394. Judicial review of orders establishing standards; additional evidence before Secretary; certified copy of transcript**

(a)(1) In a case of actual controversy as to the validity of any order under section 1392 of this title, any person who will be adversely affected by such order when it is effective may at any time prior to the sixtieth day after such order is issued file a petition with the United States court of appeals for the circuit wherein such person resides or has his principal place of business, for a judicial review of such order. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary or other officer designated by him for that purpose. The Secretary thereupon shall file in the court the record of the proceedings on which the Secretary based his order, as provided in section 2112 of Title 28.

(2) If the petitioner applies to the court for leave to adduce additional evidence, and shows to the satisfaction of the court that such additional evidence is material and that there were reasonable grounds for the failure to adduce such evidence in the proceeding before the Secretary, the court may order such additional evidence (and evidence in rebuttal thereof) to be taken before the Secretary, and to be adduced upon the hearing, in such manner and upon such terms and conditions as to the court may seem proper. The Secretary may modify his findings as to the facts, or make new findings, by reason of the additional evidence so taken, and he shall file such modified or new findings, and his recommendation, if any, for the modification or setting aside of his original order with the return of such additional evidence.

(3) Upon the filing of the petition referred to in paragraph (1) of this subsection, the court shall have jurisdiction to review the order in accordance with section 1009 of Title 5 and to grant appropriate relief as provided in such section.

(4) The judgment of the court affirming or setting aside, in whole or in part, any such order of the Secretary shall be final, subject to review by the Supreme Court of the United States upon certiorari or certification as provided in section 1254 of Title 28.

(5) Any action instituted under this subsection shall survive, notwithstanding any change in the person occupying the office of Secretary of<sup>1</sup> any vacancy in such office.

(6) The remedies provided for in this subsection shall be in addition to and not in substitution for any other remedies provided by law.

(b) A certified copy of the transcript of the record and proceedings under this section shall be furnished by

<sup>1</sup> So in original.

the Secretary to any interested party at his request, and payment of the costs thereof, and shall be admissible in any criminal, exclusion of imports, or other proceeding arising under or in respect of this subchapter, irrespective of whether proceedings with respect to the order have previously been initiated or become final under subsection (a) of this section.

\* \* \* \*

**§1410b. Occupant restraint systems—Amendment of Federal motor vehicle safety standard numbered 208; effective date**

(a) Not later than 60 days after October 27, 1974, the Secretary shall amend the Federal motor vehicle safety standard numbered 208 (49 CFR 571.208), so as to bring such standard into conformity with the requirements of paragraphs (1), (2), and (3) of subsection (b) of this section. Such amendment shall take effect not later than 120 days after October 27, 1974.

**Federal motor vehicle safety standard requirements**

(b) After the effective date of the amendment prescribed under subsection (a) of this section:

(1) No Federal motor vehicle safety standard may—

(A) have the effect of requiring, or

(B) provide that a manufacturer is permitted to comply with such standard by means of, any continuous buzzer designed to indicate that safety belts are not in use, or any safety belt interlock system.

(2) Except as otherwise provided in paragraph (3), no Federal motor vehicle safety standard respecting occupant restraint systems may—

(A) have the effect of requiring, or

(B) provide that a manufacturer is permitted to comply with such standard by means of, an occupant restraint system other than a belt system.

(3)(A) Paragraph (2) shall not apply to a Federal motor vehicle safety standard which provides that a manufacturer is permitted to comply with such standard by equipping motor vehicles manufactured by him with either—

(i) a belt system, or

(ii) any other occupant restraint system specified in such standard.

(B) Paragraph (2) shall not apply to any Federal motor vehicle safety standard which the Secretary elects to promulgate in accordance with the procedure specified in subsection (c) of this section, unless it is disapproved by both Houses of Congress by concurrent resolution in accordance with subsection (d) of this section.

(C) Paragraph (2) shall not apply to a Federal motor vehicle safety standard if at the time of promulgation of such standard (i) the 60-day period determined under subsection (d) of this section has expired with respect to any previously promulgated standard which the Secretary has elected to promulgate in accordance with subsection (c) of this section, and (ii) both Houses of Congress have not by concurrent resolution within such period disapproved such previously promulgated standard.

**Federal motor vehicle safety standard promulgation procedure; rule making requirement; data, views or arguments; presentation opportunity; transcript; notification of Congressional Committees; data, views, or arguments of Members of Congress; transmittal of standard to Congress and Congressional Committees**

(c) The procedure referred to in subsection (b)(3)(B) and (C) of this section in accordance with which the Secretary may elect to promulgate a standard is as follows:

(1) The standard shall be promulgated in accordance with section 1392 of this title, subject to the other provisions of this subsection.

(2) Section 553 of Title 5 shall apply to such standard; except that the Secretary shall afford interested persons an opportunity for oral as well as written presentation of data, views, or arguments. A transcript shall be kept of any oral presentation.

(3) The chairmen and ranking minority members of the House Interstate and Foreign Commerce Committee and the Senate Commerce Committee shall be notified in writing of any proposed standard to which this section applies. Any Member of Congress may make an oral presentation of data, views, or arguments under paragraph (2).

(4) Any standard promulgated pursuant to this subsection shall be transmitted to both Houses of Congress, on the same day and to each House while it is in session. In addition, such standard shall be transmitted to the chairmen and ranking minority members of the committees referred to in paragraph (3).

**Concurrent resolution of disapproval during prescribed period; Federal motor vehicle safety standard effective upon expiration of such period**

(d)(1) A standard which the Secretary has elected to promulgate in accordance with subsection (c) of this section shall not be effective if, during the first period of 60 calendar days of continuous session of Congress after the date of transmittal to Congress, both Houses of Congress pass a concurrent resolution the matter after the resolving clause of which reads as follows: "The Congress disapproves the Federal motor vehicle safety standard transmitted to Congress on \_\_\_\_\_, 19\_\_,"; (the blank space being filled with date of transmittal of the standard to Congress). If both Houses do not pass such a resolution during such period, such standard shall not be effective until the expiration of such period (unless the standard specifies a later date).

(2) For purposes of this section—

(A) continuity of session of Congress is broken only by an adjournment sine die; and

(B) the days on which either House is not in session because of an adjournment of more than 3 days to a day certain are excluded in the computation of the 60-day period.

**Judicial review of Federal motor vehicle safety standard**

(e) This section shall not impair any right which any person may have to obtain judicial review of a Federal motor vehicle safety standard.

### Definitions

(f) For purposes of this section:

(1) The term "safety belt interlock" means any system designed to prevent starting or operation of a motor vehicle if one or more occupants of such vehicle are not using safety belts.

(2) The term "belt system" means an occupant restraint system consisting of integrated lap and shoulder belts for front outboard occupants and lap belts for other occupants. With respect to (A) motor vehicles other than passenger vehicles, (B) convertibles, and (C) open-body type vehicles, such term also includes an occupant restraint system consisting of lap belts or lap belts combined with detachable shoulder belts.

(3) The term "occupant restraint system" means a system the principal purpose of which is to assure that occupants of a motor vehicle remain in their seats in the event of a collision or rollover. Such term does not include a warning device designed to indicate that seat belts are not in use.

(4) The term "continuous buzzer" means a buzzer other than a buzzer which operates only during the 8 second period after the ignition is turned to the "start" or "on" position.

\* \* \* \*

### APPENDIX E

49 C.F.R. § 571.208 (1977)

#### § 571.208 Standard No. 208; Occupant crash protection.

S1. *Scope.* This standard specifies performance requirements for the protection of vehicle occupants in crashes.

S2. *Purpose.* The purpose of this standard is to reduce the number of deaths of vehicle occupants, and the severity of injuries, by specifying vehicle crashworthiness requirements in terms of forces and accelerations measured on anthropomorphic dummies in test crashes, and by specifying equipment requirements for active and passive restraint systems.

S3. *Application.* This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses. In addition, S9, *Pressure vessels and explosive devices*, applies to vessels designed to contain a pressurized fluid or gas, and to explosive devices, for use in the above types of motor vehicles as part of a system designed to provide protection to occupants in the event of a crash.

#### S4. *General requirements.*

##### S4.1 *Passenger cars.*

\* \* \* \*

S4.1.2 *Passenger cars manufactured from September 1, 1973, to August 31, 1983.* Each passenger car manufactured from September 1, 1973 to August 31, 1981, inclusive, shall meet the requirements of S4.1.2.1, S4.1.2.2, or S4.1.2.3. Each passenger car manufactured from September 1, 1981, to August 31, 1982, inclusive, shall meet the requirements of S4.1.2.1, S4.1.2.2, or S4.1.2.3, except that a passenger car with a wheelbase of more than 114 inches shall meet the requirements specified in S4.1.3. Each passenger car manufactured from September 1, 1982, to August 31,

1983, inclusive, shall meet the requirements of S4.1.2.1, S4.1.2.2, or S4.1.2.3, except that a passenger car with a wheelbase of more than 100 inches shall meet the requirements specified in S4.1.3. A protection system that meets the requirements of S4.1.2.1 or S4.1.2.2 may be installed at one or more designated seating positions of a vehicle that otherwise meets the requirements of S4.1.2.3.

*S4.1.2.1 First option—Complete passive protection system.* The vehicle shall:

(a) At each front designated seating position meet the frontal crash protection requirements of S5.1 by means that require no action by vehicle occupants;

(b) At each rear designated seating position have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 and to S7.1 and S7.2; and

(c) Either: (1) Meet the lateral crash protection requirements of S5.2 and the rollover crash protection requirements of S5.3 by means that require no action by vehicle occupants; or

(2) At each front designated seating position have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 and to S7.1 through S7.3, and that meets the requirements of S5.1 with front test dummies as required by S5.1, restrained by the Type 1 or Type 2 seat belt assembly (or the pelvic portion of any Type 2 seat belt assembly which has a detachable upper torso belt) in addition to the means that require no action by the vehicle occupant.

*S4.1.2.2 Second option—head-on passive protection system.* The vehicle shall—

(a) At each designated seating position have a Type 1 seat belt assembly or a Type 2 seat belt assembly with a detachable upper torso portion that conforms to S7.1 and S7.2 of this standard.

(b) At each front designated seating position, meet the frontal crash protection requirements of S5.1, in a perpendicular impact, by means that require no action by vehicle occupants;

(c) At each front designated seating position, meet the frontal crash protection requirements of S5.1, in a perpendicular impact, with a test device restrained by a Type 1 seatbelt assembly; and

(d) At each front outboard designated seating position, have a seatbelt warning system that conforms to S7.3.

*S4.1.2.3 Third option—lap and shoulder belt protection system with belt warning.*

*S4.1.2.3.1* Except for convertibles and open-body vehicles, the vehicle shall—

(a) At each front outboard designated seating position have a seat belt assembly that conforms to S7.1 and S7.2 of this standard, and a seat belt warning system that conforms to S7.3. The belt assembly shall be either a Type 2 seat belt assembly with a nondetachable shoulder belt that conforms to Standard No. 209 (§ 571.209), or a Type 1 seat belt assembly such that with a test device restrained by the assembly the vehicle meets the frontal crash protection requirements of S5.1 in a perpendicular impact.

(b) At any center front designated seating position, have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 (§ 571.209) and to S7.1 and S7.2 of this standard, and a seat belt warning system that conforms to S7.3; and

(c) At each other designated seating position, have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 (§ 571.209) and S7.1 and S7.2 of this standard.

S4.1.2.3.2 Convertibles and open-body type vehicles shall at each designated seating position have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 (§ 571.209) and to S7.1 and S7.2 of this standard, and at each front designated seating position have a seat belt warning system that conforms to S7.3.

S4.1.3 *Passenger cars manufactured on or after September 1, 1983.* Each passenger car manufactured on or after September 1, 1983, shall—

(a) At each front designated seating position meet the frontal crash protection requirements of S5.1 by means that require no action by vehicle occupants;

(b) At each rear designated seating position have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 and S7.1 and S7.2; and

(c) Either—

(1) Meet the lateral crash protection requirements of S5.2 and the roll-over crash protection requirements of S5.3 by means that require no action by vehicle occupants; or

(2) At each front designated seating position have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 and S.7 through S7.3, and meet the requirements of S5.1 with front test dummies as required by S5.1, restrained by the Type 1 and Type 2 seat belt assembly (or the pelvic portion of any Type 2 seat belt assembly which has a detachable upper torso belt) in addition to the means that require no action by the vehicle occupant.

\* \* \* \*

#### S5. *Occupant crash protection requirements.*

S5.1 *Frontal barrier crash.* When the vehicle traveling longitudinally forward at any speed up to and including 30 mph, impacts a fixed collision barrier that is

perpendicular to the line of travel of the vehicle, or at any angle up to 30° in either direction from the perpendicular to the line of travel of the vehicle, under the applicable conditions of S8, with anthropomorphic test devices at each designated seating position described in (a) or (b) for which a barrier crash test is required under S4., it shall meet the injury criteria of S6. An anthropomorphic test device shall be placed—

(a) In the case of a vehicle equipped with front bucket seats, at each front designated seating position; and

(b) In the case of a vehicle equipped with a front bench seat, at the driver's designated seating position and at any other one front designated seating position.

S5.2 *Lateral moving barrier crash.* When the vehicle is impacted laterally on either side by a barrier moving at 20 mph, with a test device at the front outboard designated seating position adjacent to the impacted side, under the applicable conditions of S8., it shall meet the injury criteria of S6.2 and S6.3.

S5.3 *Rollover.* When the vehicle is subjected to a rollover test in either lateral direction at 30 mph with a test device in the front outboard designated seating position on its lower side as mounted on the test platform, under the applicable conditions of S8, it shall meet the injury criteria of S6.1.

#### S6. *Injury criteria.*

S6.1 All portions of the test device shall be contained within the outer surfaces of the vehicle passenger compartment throughout the test.

S6.2 The resultant acceleration at the center of gravity of the head shall be such that the expression:

$$[(1/t_2 - t_1) \int_{t_1}^{t_2} a dt] (t_2 - t_1)$$

shall not exceed 1,000, where  $a$  is the resultant acceleration expressed as a multiple of  $g$  (the acceleration of gravity), and  $t_1$  and  $t_2$  are any two points in time during the crash. However, in the case of a passenger car manufactured before August 31, 1976, or a truck or multipurpose passenger vehicle with a GVWR of 10,000 pounds or less manufactured before August 15, 1977, when the dummy is restrained by a seatbelt system,  $t_1$  and  $t_2$  are any two points in time during any interval in which the head is in continuous contact with a part of the vehicle other than the belt system.

S6.3 The resultant acceleration at the center of gravity of the upper thorax shall not exceed 60g's, except for intervals whose cumulative duration is not more than 3 milliseconds. However, in the case of a passenger car manufactured before August 31, 1976, or a truck or multipurpose passenger vehicle with a GVWR of 10,000 pounds or less manufactured before August 15, 1977, the resultant acceleration at the center of gravity of the upper thorax shall be such that the severity index calculated by the method described in SAE Information Report J885a, October 1966, shall not exceed 1,000.

S6.4 The comprehensive force transmitted axially through each upper leg shall not exceed 2,250 pounds.

\* \* \* \*

## APPENDIX F

### Title 49—Transportation

#### CHAPTER V—NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

[Docket No. 74-14; Notice 10]

#### PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

##### Occupant Restraint Systems

AGENCY: Department of Transportation (DOT)

ACTION: Final Rule.

SUMMARY: The existing motor vehicle safety standard for occupant crash protection in new passenger cars is amended to require the provision of "passive" restraint protection in passenger cars with wheelbases greater than 114 inches manufactured on and after September 1, 1981, in passenger cars with wheelbases greater than 100 inches on and after September 1, 1982, and in all passenger cars manufactured on or after September 1, 1983. The low usage rate of active seat belt systems negates much of their potential safety benefit. However, lap belts will continue to be required at most front and all rear seating positions in new cars, and the Department will continue to recommend their use to motorists. It is found that upgraded occupant crash protection is a reasonable and necessary exercise of the mandate of the National Traffic and Motor Vehicle Safety Act to provide protection through improved automotive design, construction, and performance.

DATES: Effective date SEP 1 1981.

ADDRESSES: Petitions for reconsideration should refer to the docket number and be submitted to: Docket Section,

Room 5108—Nassif Building, 400 Seventh Street, S.W., Washington, D.C. 20590.

#### FOR FURTHER INFORMATION CONTACT:

Tad Herlihy, Office of Chief Counsel, National Highway Traffic Safety Administration, Washington, D.C. 20590 (202 426-9511)

#### SUPPLEMENTARY INFORMATION:

### CONSIDERATIONS UNDERLYING THE STANDARD

Under the National Traffic and Motor Vehicle Safety Act, as amended, (the Act) (15 U.S.C. 1381 et seq.) the Department of Transportation is responsible for issuing motor vehicle safety standards that, among other things, protect the public against unreasonable risk of death or injury to persons in the event accidents occur. The Act directs the Department to consider whether a standard would contribute to carrying out the purposes of the Act and would be reasonable, practicable, and appropriate for a particular type of motor vehicle (15 U.S.C. 1392(f)(3)). The standard must, as formulated, be practicable, meet the need for motor vehicle safety, and be stated in objective terms (15 U.S.C. 1392(a)). The Senate Committee drafting the statute stated that safety would be the overriding consideration in the issuance of standards. S. Rep. No. 1301, 89th Cong., 2d Sess. (1966) at 6.

The total number of fatalities annually in motor vehicle accidents is approximately 46,000 (estimate for 1976), of which approximately 25,000 are estimated to be automobile front seat occupants. Two major hazards to which front seat occupants are exposed are ejection from the vehicle, which increases the probability of fatality greatly, and impact with the vehicle interior during the crash. Restraint of occupants to protect against these

hazards has long been recognized as a means to substantially reduce the fatalities and serious injuries experienced at the front seating positions.

One of the Department's first actions in implementing the Act was promulgation in 1967 of Standard No. 208, *Occupant Crash Protection* (49 CFR 571.208), to make it possible for vehicle occupants to help protect themselves against the hazards of a crash by engaging seat belts. The standard requires the installation of lap and shoulder seat belt assemblies (Type 2) at front outboard designated seating positions (except in convertibles) and lap belt assemblies (Type 1) at all other designated seating positions. The standard became effective January 1, 1968.

While it is generally agreed that when they are worn, seat belt assemblies are highly effective in preventing occupant impact with the vehicle interior or ejection from the vehicle, only a minority of motorists in the United States use seat belts. For all types of belt systems, National Highway Traffic Safety Administration (NHTSA) studies show that about 20 percent of belt systems are used (DOT HS 6 01340 (in process)). The agency's calculations show that only about 2,600 deaths (and corresponding numbers of injuries) of front seat occupants were averted during 1976 by the restraints required by Standard No. 208 as it is presently written.

Two basic approaches have been developed to increase the savings of life and mitigation of injury afforded by occupant restraint systems. More than 20 nations and two provinces of Canada have enacted mandatory seat belt use laws to increase usage and thereby the effective lifesaving potential of existing seat belt systems. The other approach is to install automatic passive restraints in passenger cars in place of, or in conjunction with, active belt systems. These systems are passive in the sense that no action by the occupant is required to benefit from the

restraint. Passive restraint systems automatically provide a high level of occupant crash protection to virtually 100 percent of front seat occupants.

The two forms of passive restraint that have been commercially produced are inflatable occupant restraints (commonly known as air bags) and passive belts. Air bags are fabric cushions that are rapidly filled with gas to cushion the occupant against colliding with the vehicle interior when a crash occurs that is strong enough to register on a sensor device in the vehicle. The deployment is accomplished by the rapid generation or release of a gas to inflate the bag. Passive belt systems are comparable to active belt systems in many respects, but are distinguished by automatic deployment around the occupant as the occupant enters the vehicle and closes the door.

#### HISTORY OF STANDARD NO. 208

Because of the low usage rates of active belt systems and because alternative technologies were becoming available, the initial seat belt requirements of Standard No. 208 were upgraded in 1970 to require passive restraints by 1974 (35 FR 16927; November 3, 1970). Most passenger car manufacturers petitioned for judicial review of this amendment (*Chrysler v. DOT*, 472 F.2d 659 (6th Cir. 1972)). The Sixth Circuit's review upheld the mandate in most respects but remanded the standard to the agency for further specification of a test dummy that was held to be insufficiently objective for use as a measuring device in compliance tests. The court stated with regard to two of the statutory criteria for issuance of motor vehicle safety standards:

We conclude that the issue of the relative effectiveness of active as opposed to passive restraints is one which has been duly delegated to

the Agency, with its expertise, to make; we find that the Agency's decision to require passive restraints is supported by substantial evidence, and we cannot say on the basis of the record before us that this decision does not meet the need for motor vehicle safety. 472 F.2d at 675.

... we conclude that Standard 208 is practicable as that term is used in this legislation. 472 F.2d at 674.

As for objective specification of the test dummy device, a detailed set of specifications (49 CFR Part 572) was issued in August 1973 (38 FR 20449; August 1, 1973) and updated with minor changes in February 1977 (42 FR 7148; February 7, 1977). A full discussion of the test dummy specifications is set forth in a rulemaking issued today by the NHTSA concerning technical aspects of Standard No. 208 (42 FR ; ).

In March 1974, the Department made the finding that the test dummy is sufficiently objective to satisfy the *Chrysler* court remand (39 FR 10271; March 19, 1974). In the same notice, mandatory passive restraints were again proposed. Based on the comments received in response to that notice, the passive restraint mandate was once again proposed in a modified form in June 1976 (41 FR 24070; June 14), 1976). In the interim, General Motors Corporation manufactured, certified, and sold approximately 10,000 air-bag-equipped full-size Buicks, Oldsmobiles, and Cadillacs. Volkswagen has manufactured and sold approximately 65,000 passive-belt-equipped Rabbit model passenger cars. Volvo Corporation has also introduced a relatively small number of air-bag-equipped vehicles into service. Ford Motor Company had earlier manufactured 831 air-bag-equipped Mercurys. These vehicles were manufactured under one of two options placed in the standard in 1971 to permit optional production of vehicles with passive restraint systems in place of seat belt assem-

blies otherwise required. In 1972, the standard was also amended to require an "ignition interlock" system on front seat belts to force their use before the vehicle could be started. This requirement, effective in September 1973, was revoked in October 1974 in response to a Congressional prohibition on its specification (Pub. L. 93-492, § 109 (October 27, 1974)).

The Department's final action on its June 1976 proposal ("The Secretary's Decision Concerning Motor Vehicle Occupant Crash Protection," hereinafter "the December 1976 decision") continued the existing requirements of the standard (42 FR 5071; January 27, 1977) and created a demonstration program to familiarize the public with passive restraints. The Department negotiated contracts with four automobile manufacturers for the production of up to 250,000 passive-equipped vehicles per year for introduction into the passenger car fleet in model years 1980-1. Mercedes-Benz agreed to manufacture 2,250 such passenger cars, and Volkswagen agreed to manufacture 125,000 of its passive-belt-equipped Rabbit models. Ford agreed to participate by "establishing the capability of manufacturing" 140,000 compact model passenger cars, and General Motors agreed to "establish production capacity" to manufacture 300,000 intermediate size passenger cars. The December 1976 decision was based on the finding that, although passive restraints are technologically feasible at reasonable cost and would prevent 9,000 fatalities annually when fully integrated into the fleet, possible adverse reaction by an uninformed public after the standard took effect could inspire their prohibition by Congress with substantial attendant economic waste and incalculable harm to the cause of highway safety. This finding was based in large part on the Department's experience with the ignition interlock on 1974- and 1975-model passenger cars, which was prohibited by Congress in response to industry and public opposition.

Early in 1977, the Department reconsidered the December 1976 decision because public acceptance or rejection of passive restraints is not one of the statutory criteria which the Department is charged by law to apply in establishing standards. In addition, the demonstration program introduced a minimum 3-year delay in implementation of mandatory passive restraints. The Department questioned the premise that passive restraint systems would foster consumer resistance as had the ignition interlock system. While the ignition interlock system forced action by the motorist as a condition for operating an automobile, passive restraints eliminate the need for any action by the occupant to obtain their crash protection benefits.

A third reason for reassessment of the December 1976 decision was the certainty that an increasing proportion of the passenger car fleet will be small cars, in response to the energy situation and the automotive fuel economy program established by the Energy Policy and Conservation Act. The introduction of these new, smaller vehicles on the highway holds the prospect of an increase in the fatality and injury rate unless countermeasures are undertaken.

Based on this reconsideration, the Department proposed (42 FR 15935; March 24, 1977) that the future crash protection requirements of Standard No. 208 take one of three forms: (1) continuation of the present requirements, (2) mandatory passive restraints at one or more seating positions of passenger cars manufactured on or after September 1, 1980, or (3) continuation of the existing requirements in conjunction with proposed legislation to establish Federal or State mandatory seat belt use laws.

The proposal for an occupant restraint system other than seat belts invoked a provision of the Act (15 U.S.C. § 1400(b)) that requires notification to Congress of the action. The Act also requires that a public hearing be held at which any Member of Congress or any other interested person could present oral testimony. The proposal was transmitted to the Congress on March 21, 1977, with an

invitation to appear at a public hearing chaired by the Secretary on April 27 and 28, 1977, in Washington, D.C. A transcript of this meeting, along with written comments on the March 1977 proposal, are available in the public docket.

### DISCUSSION OF ISSUES

The March 1977 proposal of three possible courses of action for future occupant crash protection is grounded in a large, complex administrative record that has been developed in the 8 years since passive restraints were first contemplated by the Department. Interested persons are invited to review the NHTSA public docket that has been compiled under designations 69-7, 73-8, and 74-14. Consideration of the issues and questions that have arisen during the years of rulemaking can be found in the preambles to the Department's numerous rulemaking notices on passive restraints. Although many of the comments on the March 1977 proposal raised issues that have been discussed in previous notices, the significant issues will be addressed here again, in light of the most recent information available to the Department.

*The need for rulemaking action.* An important reason to consider anew the occupant crash protection issue is the basic and positive changes that the automobile will undergo in the years ahead. Until recently, the basic characteristics of automobiles sold to the American public have evolved for the most part in response to the forces of the market place. High premium was placed upon styling, roominess, and acceleration performance. In a cheap-energy society, relatively little attention was paid to efficiency of operation. Nor, until relatively recently, was serious consideration given to minimizing the adverse impact of the automobile upon air quality.

Recent circumstances, however, have drastically altered the situation, and have made it abundantly clear that the automobile's characteristics must reflect broadly defined societal goals as well as those advanced by the individual car owner. The President has announced a new national energy policy that recognizes a compelling need for changes in the American lifestyle. Congress has implemented statutory programs to improve the fuel economy of automobiles, as one result of which this Department has just issued demanding fuel economy standards for 1981 through 1984 passenger cars. Right now, the Congress is deliberating over amendments to the Clean Air Act which will impose relatively stringent emissions requirements effective over the same time frame.

The trend toward smaller cars to improve economy and emissions performance contains a potential for increased hazard to the vehicles' occupants. But technology provides the means to protect against this hazard, and this Department's statutory mandate provides authority to assure its application. The Report of the Federal Interagency Task Force on Motor Vehicle Goals for 1980 and Beyond indicated that simultaneous achievement of ambitious societal goals for the automobile in the areas of fuel economy, emissions, and safety is technologically feasible. Integrated test vehicles developed by this Department confirm that finding and, further, demonstrate that the resulting vehicles need not unduly sacrifice the other functional and esthetic attributes traditionally sought by the American car buyer.

Moreover, the socially responsive automobile of the 1980's need not bring a penalty in economy of ownership. The just-issued passenger car fuel economy standards are calculated to reduce the overall costs of operating an automobile by \$1,000 over the vehicle's lifetime. In the

case of improved safety performance, the occupant restraint improvements specified in this notice can be expected to pay for themselves in reduced first-person liability insurance premiums during the life of the vehicle.

The issue of occupant crash protection has been outstanding too long, and a decision would have been further delayed while the demonstration programs was conducted. A rigorous review of the findings made by the Department in December 1976 demonstrates that they are in all substantial respects correct as to the technological feasibility, practicability, reasonable cost, and lifesaving potential of passive restraints. The decision set forth in this notice is the logical result of those findings.

In reassessing the December 1976 decision, the Department has considered each available means to increase crash protection in arriving at the most rational approach. As proposed, the possibility of "driver-side only" passive protection was considered, but was rejected because of the unsatisfactory result of having one front-seat passenger offered protection superior to that offered other front-seat passengers in the same vehicle. On balance, there was found to be little cost or lead-time advantage to this approach. The possibility of reinstituting a type of safety belt interlock was rejected because the agency's authority was definitively removed by the Congress less than three years ago and there is no reason to believe that Congress has changed its position on the issue since that time.

*Mandatory belt use laws.* One of the means proposed in the March notice to achieve a large reduction in highway deaths and injuries is Federal legislation to induce State enactment of mandatory seat belt use laws, either by issuance of a highway safety program standard or by making State passage of such laws a condition for the receipt of Federal highway construction money.

The prospects for passage of mandatory seat belt use laws by more than a few States appear to be poor. None of the commenters suggested that passage of such laws was likely. A public opinion survey sponsored by the Motor Vehicle Manufacturers Association and conducted by Yankelovich, Skelly, and White, Inc. indicated that a 2-to-1 majority nationwide opposes belt use laws. Many such bills have been presented, no State has enacted one up to now. Also, Congress denied funding for a program to encourage State belt use laws in 1974, suggesting that it does not look favorably upon Federal assistance in the enactment of these laws.

More recently, Congress removed the Department's authority to withdraw Federal safety funding in the case of States that do not mandate the use of motorcycle helmets on their highways (Pub. L. 94-280, Sec. 208(a), May 5, 1976). The close parallel between requiring helmet use and requiring seat belt use argues against the likelihood of enactment of belt use laws.

These strong indications that Congress would not enact a belt use program in the foreseeable future demonstrate, in large measure, why the success of other nations in enacting laws is not parallel to the situation in the United States. In the belt use jurisdictions most often compared to the United States (Australia and the Provinces of Canada), the laws were enacted at the State or Province level in the first instance, and not at the Federal level. In the Department's judgment, the most reasonable course of action to obtain effective belt use laws in the United States will be to actively encourage their enactment in one or more States. An attempt to impose belt use laws on citizens by the Federal government would create difficulties in Federal-State relations, and could damage rather than further the interests of highway safety.

*Effectiveness of passive restraints.* The December 1976 decision concluded that the best estimates of effectiveness in preventing deaths and injuries of the various types of restraint systems under consideration were as set forth in Table I. Using the effectiveness estimates from Table I, the projection of benefits attributable to various restraint systems is summarized in Table II. Several comments concerning the effectiveness of passive restraint systems were submitted in response to the March 1977 proposal.

Insurance company commenters generally supported the Department's estimates. General Motors, however, disputed the validity of the estimates in the December 1976 decision, arguing that the results experienced by the approximately 10,000 GM vehicles sold to the public indicated a much lower level of effectiveness. It made comparisons between accidents involving those cars and other accidents with conventional cars, selected to be as similar as possible in type and severity. On the basis of this study, GM stated that the data indicate that the "current air cushion-lap belt system, if available in all cars would save less than the nearly 3,000 lives that can be saved by only 20 percent active lap/shoulder belt use."

The Department finds the methods used in the General Motors study to be of doubtful value in arriving at an objective assessment of the experience of the air-bag-equipped vehicles. General Motors is a vastly interested party in these proceedings, and the positions that it adopts are necessarily those of an advocate for a particular result. This is in no sense a disparagement; advocacy of desired outcomes by interested parties is an essential part of the administrative process. But if a study advanced by an interested advocate is to be seriously considered from a "scientific" viewpoint, it must be carefully designed to avoid dilution of its objectivity by the bias of the sponsoring party. The GM study fails that test. Its foundation is a long series of qualitative judgments, which are made by

employees of the party itself. An equally serious fault is that the basic body of accident data from which the comparison accidents are selected is not available to the public, so that countering analyses cannot be made by opposing parties, nor can the judgments in the original study be checked. General Motors had previously submitted to an earlier Standard No. 208 docket a study of restraint system effectiveness based on similarly qualitative judgments by its own employees (69-07-GR-256-01). The shoulder belt effectiveness figures arrived at in that study were about one-half of what are now generally recognized to be the actual values. While this later study utilizes a somewhat different methodology, it suffers from the same flaws in its failure to preclude dilution of its objectivity by the bias of its sponsor.

Economics and Science Planning, Inc., submitted three studies that made estimates of air bag effectiveness. In one, the estimate of air bag effectiveness was at least as high as the theoretical projections made in Table II. In another, a very low estimate of air bag effectiveness was made—from 15 to 25 percent.

The Insurance Institute for Highway Safety submitted another estimate of air bag effectiveness based on the experience with the GM cars in highway use. A selection was made of accidents in which the air bag was designed to operate, based on frontal damage, direction of impact, and age of occupant. In these accidents, air bags were determined to have reduced fatalities by 66 percent, as compared to 55 percent for three-point belts. However, the narrow selection of accidents limits the application of the figures derived in the IIHS study.

The Department considers that the most reliable method of evaluating the experience of the air-bag-equipped cars at this time is to compare the number of injuries, at various levels, sustained by their occupants

with the number that is experienced in the general population of vehicles of this type. The vehicles in question are not a sampling of the general vehicle population: they are relatively new, and mostly in the largest, "luxury" size class. Some adjustment must be made for these factors.

The adjustment for the size of the vehicles has been made by multiplying the overall injury figures by a factor of 0.643, which has been found in one study (Joksch, "Analysis of Future Effects of Fuel Storage and Increased Small Car Usage Upon Traffic Deaths and Injuries," General Accounting Office, 1975) as the ratio of fatalities per year for this size of vehicles to the figure for the general population. The newness of the vehicles has a double-edged aspect: newer vehicles are evidently driven more miles per year than older ones, but they also appear to experience fewer accidents per mile traveled (Dutt and Reinfort, "Accident Involvement and Crash Injury Rates by Make, Model, and Year of Car," Highway Safety Research Center, 1977). These two factors can be accounted for if it is assumed that they cancel each other, by using vehicle years, rather than vehicle miles, as the basis of comparison. With these adjustments, the expected number of all injuries of AIS-2 (an index of injury severity) and above in severity for conventional vehicles equivalent to the air-bag-equipped fleet during the period considered was 91. The actual number experienced was 38, indicating an effectiveness factor for these injury classes of 0.58.

A possibility of bias in these estimates exists in that injuries that have occurred in the air bag fleet may not have been reported, despite the three-level reporting system (owners, police, and dealers) that has been established. This bias is less likely to be present in frontal accidents, where the air bag is expected to (and generally does) deploy. For frontal accidents only, the number of injuries expected is 60, or 66 percent of the total

("Statistical Analysis of Seat Belt Effectiveness in 1973-1975 Model Cars Involved in Towaway Crashes," Highway Safety Research Center, 1976); only 29 have been experienced, indicating an effectiveness factor of 0.52.

These figures confirm (and in fact exceed) the effectiveness estimates of the December 1976 decision. For injuries of higher severity levels, the numbers experienced are much too small to be statistically significant.

The various assumptions and adjustments that must be made to arrive at a valid "expected" figure, and the possibility that some injuries were unreported, leaves substantial room for uncertainty and argument as to the true observed effectiveness of the restraint systems. Nevertheless, the results of the field experience are encouraging. Even if the observed-effectiveness figures arrived at by these calculations were high by a factor of 2, they would still substantially confirm the estimates of the December 1976 decision. Considering all the arguments on both sides of the issues, the Department concludes that the observed experience of the vehicles on the road equipped with air bags does not cast doubt on the effectiveness estimates in the December 1976 decision.

It has been argued that the Department should not issue a passive restraint standard in the absence of statistically significant real world data which confirm its estimates of effectiveness. Statistical "proof" is certainly desirable in decisionmaking, but it is often not available to resolve public policy decisions. It is also clear from the legislative history of the Act that the Department was not supposed to wait for the widespread introduction of a technology before it could be mandated. The Senate report for example refers to the "failure of safety to sell" in automobiles, and describes how the Department was intended to push the manufacturers into adopting new

safety technology that would not be introduced voluntarily (S. Rep. 1301, 89th Cong. 2nd. Sess. 4 (1966)). The *Chrysler* case found that "The explicit purpose of the Act is to enable the Federal Government to impel automobile manufacturers to develop and apply new technology to the task of improving the safety design of automobiles as readily as possible." (472 F.2d at 671).

*Cost of passive restraints.* Passive belts have been estimated in the past by the Department to add \$25 to the price of an automobile, relative to the price of cars with present active belt systems. The increased operating cost over the life of a vehicle with passive belts is estimated to be \$5. These figures are assumed valid for purposes of this review, and were not contested in the comments received.

This Department, General Motors, Ford, DeLorean, and Minicars all have produced estimates of the passenger car price increase due to the inclusion of air bags. These are sufficiently detailed and current to be compared, and are set forth in Table III. The Department estimate has been raised somewhat above its previous ones because of the \$14 increase in the price of the components of an air bag system quoted by a supplier.

The General Motors estimates have been revised from previous estimates in several respects. Research and development, engineering, and tooling expenses are no longer amortized entirely in the first year, but are spread over 3 years (other estimates spread these costs over 5 years). The allowance for removal of active belt hardware has been reduced to conform more closely to the Department's estimates. The newer figures reflect a somewhat more complex system, including new sensors. Of the \$81 spread between the Department and the GM estimates, all but \$11 can be attributed to differences in the following areas: GM's estimate of dealer profit which is based on sticker prices (rather than actual sale price), GM's shorter amortization period, added complexity of the 1977 system

over the 1976 system, and the cost of major modifications of the vehicle which the agency questions. The remaining \$11 difference must be considered as disagreement concerning the elements of cost shown in the table.

The Ford estimate is the same as previously submitted. Forty-two dollars of the difference from the Department estimate is a higher profit figure arising from Ford's use of sticker prices rather than actual price of sale, which gives the dealer less mark-up. A substantial amount of difference is for a complex electronic diagnostic module, extra sensors that the Department does not view as necessary, and the use of a knee bolster instead of a cheaper knee air bag. Thirty-nine dollars represents unreconciled differences.

Operating costs consist mainly of the cost of replacing a deployed bag, fuel cost, and maintenance. Ford also includes an amount for periodic inspection. The Department estimate for replacement cost differs from the GM and Ford estimates almost entirely as a result of the lower estimate for the first cost of the system. The fuel costs differ primarily as a result of different weight figures for the passive systems, which may be design choices of the manufacturers. The Department's evaluation of manufacturers' cost objections is being placed in the public docket as required by § 113 of the Act.

If, as projected, passive restraints are effective in saving lives and reducing injuries, as compared to existing belt systems at present use rate, the insurance savings that will result will offset a major portion, and possibly all, of the cost to the consumer of the systems. There may be some doubt on this point that arises from skepticism concerning the behavior of insurers.

The vast majority of auto occupant injuries beyond the minor level result in automobile, health, or life insurance claims. In some States, insurers may lack a degree of

flexibility in the adjustment of premiums because of pressures from insurance commissions. However, the evidence indicates that premiums are fundamentally based on claims experience.

In its comments to the docket, Nationwide Mutual Insurance Companies estimated that savings in insurance premiums should average \$32.50 per insured car per year if all cars were equipped with air bags. Of this amount, 75 percent is the result of an assumed savings of 24.6 percent in the bodily injury portion of automobile insurance premiums, 21 percent from a 1.5 percent reduction in health insurance premiums (30 percent of the 5 percent of the premiums that pay for auto-related injuries), and the remainder from savings in life insurance premiums. The American Mutual Insurance Alliance and Allstate referred to existing 30 percent discounts in first-party coverage and concluded that comparable reductions would be expected to follow a mandate of passive restraints.

It has been argued that these savings would be largely offset by the increased cost of collision and property damage insurance due to the increased cost of repairing a car with a deployed air bag. This claim appears to be largely unfounded. Using figures based on field tests, it is estimated that each year 300,000 automobiles will be in accidents of sufficient severity to deploy the air bag. (Cooke, "Usage of Occupant Crash Protection Systems," NHTSA, July 1976, #74-14-GR-30, App. A.) Accepting vehicle manufacturer estimates, it is further assumed that the cost of replacing an air bag will be 2.5 times the original equipment cost. If a car more than 6 years old is involved in an air-bag-deploying accident, it is assumed scrapped rather than being repaired. Combining these assumptions with the estimated \$112 cost of installing a full front air cushion in a new vehicle gives a total annual cost of replacement of \$50.4 million, or a per car cost of less than 51 cents per year. Increases in collision premiums

should, therefore, not exceed \$1 per car per year. It is noted that deployment in non-crash cases would be covered by "comprehensive" insurance policies.

The \$32.50 annual insurance savings estimated by Nationwide would be sufficient to pay for the added operating cost (around \$4 per year) of an air-bag-equipped car with enough left over to more than pay for the initial cost of the system. Discounting at the average interest rate on new car loans measured in real terms (6 percent), the air bag would almost recover the initial cost in 4 years, with a savings over operating cost of \$107.

Economic and Science Planning, Inc. (ESP) has submitted a differing estimate, that insurance savings with full implementation of passive restraints would be only \$3.60, rather than \$32.50 per year. About one-half of the difference arises from ESP's assumption that seat belt usage would voluntarily rise to the 44 percent level by 1984. This seems highly improbable, based on experience to date.

Moreover, that assumption does not support the deletion of projected insurance savings resulting from passive restraints, but suggests that other courses of action (such as whatever might be done to increase belt usage to 44 percent) might also produce savings. The remaining differences are based on such factors as the portion of injury costs that is paid for by insurance. If the assumptions of ESP are allowed to remain, the savings per year would be about \$16, and the present value of auto-lifetime savings would be \$120.

*Side effects of air bag installation.* Some concerns were expressed in the comments about air bags that might be grouped as possible undesirable side effects. One of these was injuries that might be caused by design deployment. There is no question that any restraint system that must decelerate a human body from 30 mph or more to rest

within approximately 2 feet can cause injury. Belt systems often cause bruises and abrasions in protecting occupants from more serious injuries. The main question is whether any injuries caused by air bags are generally within acceptable limits, and are significantly less severe than those that would have been suffered had the occupants in question not been restrained by the air bags. The evidence from the vehicles on the road indicates that this is indeed the case. The injuries cited by GM as possibly caused or aggravated by air bag deployment are in the minor to moderate (AIS-1 and -2) category. From this it can be concluded that injuries caused by design deployment, though worthy of careful monitoring with a view to design improvements by manufacturers, do not provide a serious argument against a passive restraint requirement.

A closely related question that has caused concern in the past is whether air bags pose an unreasonable danger to occupants who are not in a normal seating position, such as children standing in front of a dashboard or persons who have been moved forward by panic braking. Much development work has been devoted to this problem in the past, to design systems that minimize the danger to persons who are close to the inflation source. The most important change in this area has probably been the general shift away from inflation systems that depend on stored high-pressure gas, in favor of pyrotechnic gas generators. With these systems the flow of gas can be adjusted to make the rate slower at the beginning of inflation, so that an out-of-position occupant is pushed more gently out of the way before the maximum inflation rate occurs.

With one exception, there have been no cases where out-of-position occupants have been found to be seriously injured in crashes in which air bags have deployed. Five of the crashes involving GM vehicles have involved chil-

dren in front seating positions (although not necessarily out of position), and others have involved children unbelted in the rear seat.

The only exception has been the death of an infant that was lying laterally on the front seat unrestrained. Apparently during panic braking that preceded the crash, the infant was thrown from the seat. While this constitutes an out-of-position situation technically, it is not the type of circumstance in which the air bag contributes to injury of the out-of-position occupant.

Inadvertent actuation of an air bag may be a particular concern to the public, as noted by both General Motors and Ford. The sudden deployment of an air bag in a non-crash situation would generally be a disconcerting experience. The experience with vehicles on the road, and tests that have been performed on 40 subjects who were not aware that there were air bags in their vehicles, indicate that loss of control in such situations should be rare: none has occurred in the incidents up to now. There is little question, however, that inadvertent actuation could cause loss of control by some segments (aged, inexperienced, distracted) of the driving population, and it must be viewed as a small but real cost of air bag protection.

The frequency of inadvertent actuation is therefore of special concern. The Ford fleet of air-bag-equipped cars (about 800 vehicles that have been on the road since late 1972, with around 500 now taken out of service) has experienced no inadvertent actuations at all. The General Motors fleet, about 10,000 sold mostly to private buyers during 1974 and 1975, has experienced three inadvertent actuations on the road. Six others have occurred in the hands of mechanics and body shop personnel, two in externally-caused fires or explosions, and one from tampering in a driveway. The Volvo fleet of 75 vehicles has experienced none. It is believed that the causes of the

GM inadvertent deployments are understood, and that the means of eliminating or considerably reducing the likelihood of all the known causes of inadvertent deployments have been found. These include shielding of the squibs (the device to ignite the propellant material in the bag inflators) against electromagnetic radiation, automatically disarming the system through the ignition system when the car is not in operation, and routing wiring so that it is less accessible to tampering or degradation.

If the figures for the combined fleets are projected onto the U.S. vehicle population, they would amount to around 7,000 on-the-road inadvertent actuations annually, or one for every 15,000 vehicles. The chances of an individual experiencing one as a vehicle occupant during his or her lifetime would be on the order of 1 in 200. This estimate probably overstates the likelihood of occurrence since the inadvertent actuations in the GM cars to date are believed to be due to design deficiencies that are correctable. Thus, although it will probably continue to be a public concern, the infrequency with which inadvertent actuation occurs leads to the conclusion that it does not constitute a weighty argument against a passive restraint requirement.

Some private individuals expressed, in their comments, concern over possible ear damage, or injuries that might be caused to persons with smoking materials in their mouths, or wearing eyeglasses. Although some early tests with oversized cushions of prototype design produced some temporary hearing losses, later designs have reduced the sound pressures to the point where ear damage is no longer a significant possibility. With respect to eyeglasses and smoking materials, the results from the vehicles on the road have been favorable. Of the occupants that had been involved in air cushion deployments as of a recent date, 71 had been smoking pipes or wearing eyeglasses or

other facial accessories. None of these received injuries beyond the minor (AIS-1) level. From this it can be concluded that these circumstances do not create particular hazards to occupants of air-bag-equipped vehicles.

Toyo Kogyo and some private individuals questioned whether air bags might experience reliability problems in high-mileage and older vehicles. The fact that air bags have only one moving part, and most of the critical components rest in sealed containers during their non-deployment life, indicates that they should perform well in this regard. The systems in the vehicles in the field, some of which have been in use for almost 5 years, have demonstrated extremely good durability, with no apparent flaws. Manufacturers use sophisticated techniques such as accelerated test cycles to assure a high level of reliability.

Reliability of restraint systems is, of course, absolutely necessary. Unlike the failure of accident prevention systems such as lights and brakes where failure does not necessarily result in harm to occupants, the failure of a restraint system when needed in a serious crash almost certainly means injury will result. Vehicle and component manufacturers are fully aware of this and take the special precautions to ensure reliability which might not be taken for less critical systems. The Department is equally aware of it and has monitored manufacturer efforts to date to ensure fail-safe performance of crash-deployed systems. As an example, copies of reliability information request letters from the Department to manufacturers preparing for the demonstration program or otherwise involved in air bag systems have been made public in the docket.

The projections of reliability to date are, of necessity, based on pilot production volumes, and cannot demonstrate fully that reliability problems associated with mass production will never occur. So that manufacturers can

avoid these types of reliability problems, the Department has settled on a phase-in of the requirements which is described later in greater detail.

General Motors and the National Automobile Dealers Association commented that product liability arising from air bag performance would be a major expense. The insurance company commenters, on the other hand, suggested that the presence of air bags in vehicles could reduce auto companies' product liability.

The new risk of liability, attached to a requirement for passive restraints, does not differ from the risk attached to the advent of any device or product whether mandated by the Federal government or installed by a manufacturer by its own choice. Just as liability might arise because of the malfunctioning of a seat belt system or braking system, liability may also arise because of the malfunctioning of a passive restraint system. The mandating of a requirement by the Federal government has, in fact, often served to limit liability, since most jurisdictions accord great weight to evidence showing that a device has met Federal standards.

There is little evidence that the mandating of passive restraints will lead to increases in product liability insurance premiums. Although the advent of new technology has often been accompanied by an increase in products liability insurance, it is unclear how much of the increase is attributable to increased risk and how much to inflation. Officials of the Department of Commerce and at least two major insurance companies doubt that Federal passive restraint requirements will lead to increased risk and insurance premiums. They point out that Federal requirements are imposed to make products safer, and safe products are less likely to cause injury.

It is noteworthy that the Allstate Insurance Company agreed to sell product liability insurance for the GM cars

which were to be equipped with passive restraint systems pursuant to the demonstration program, at a rate no greater than the product liability insurance rate for cars not equipped with passive restraint systems.

*Small cars.* An important consideration in the decision concerning passive restraints is their suitability and availability for small cars, which because of the energy shortage will comprise an increasing segment of the vehicle population in future years. Passive belts have been sold as standard equipment in over 65,000 Volkswagen cars, and must be viewed as a proven means of meeting a passive restraint requirement. Some vehicle body designs may require some modification for their installation, but passive belts could be used as restraints for most bucket-seat arrangements at moderate cost with present technology.

Some manufacturers have expressed doubt that a large proportion of their customers would find passive belts acceptable, because of their relatively obtrusive nature and the resistance shown by the U.S. public to wearing seat belt systems, i.e., belts that occupants must buckle and unbuckle. These manufacturers submitted no supporting market surveys. Further, there is reason to believe that the experience with active belt systems is not an accurate indicator of the experience to be expected with passive belts. The Department anticipates that some manufacturers will install passive belts in the front seats of small cars having only two front seats. Passive belts would not confront the occupants of those seats with the current inconvenience of having to buckle a belt system to gain its protection or of having to unbuckle that system to get out of their cars. Unlike the interlock active belt systems of several years ago, the passive belt systems will have no effect on the ability of drivers to start their cars.

Nevertheless, the question of the acceptability of passive belts may make the suitability of air bags for small

cars an important one. Although the shorter crush distance of small cars may impose more stringent limits on air bag deployment time, the evidence from studies conducted by the Department with air bags in small cars is that there are no insuperable difficulties in meeting the 30-mph crash requirements of Standard 208 in cars as small as 2000 pounds gross vehicle weight rating with existing air bag designs (see, for example, "Small Car Driver Inflatable Restraint System Evaluation Program," Contract DOT-HS-6-01412, Status Report April 15, 1977.)

The "packaging" problems of installing air bag systems are greater for small cars than for larger ones. They occupy space in the instrument panel area that might otherwise be utilized by other items such as air conditioning ducts, glove compartment, or controls and displays. Toyo Kogyo (Mazda) and Honda indicated that their instrument panels might have to be displaced 4 inches rearward, that some engine compartment and wheelbase changes might be needed, and that some dash-mounted accessories might have to be deleted or mounted elsewhere. This type of problem is expected to be important to the existing choice between air bag and passive belt systems.

It is not the role of the government to resolve these problems since, in the Department's judgment, they reflect design choices of the manufacturers. No manufacturer has claimed, much less demonstrated that it would be impracticable to install air bags in small cars without increasing vehicle size. Occupation of instrument panel space is certainly one of the unquantified costs of air bags, however, and the cost is more onerous in a small car than in a large one. At the same time, small car makers may choose to use the less costly passive belt system. The evidence presented to date indicates that small-car manu-

facturers would be able to meet a passive restraint requirement by making reasonable design compromises without increasing vehicle size.

*Lead time and production readiness.* There was considerable discussion in the comments to the docket about the ability of the automobile industry to develop the production readiness to provide passive restraint systems for all passenger cars. The installation of passive restraint systems requires the addition of new hardware and modification of vehicle structures in such a way that the system provides performance adequate to meet the standard and a high level of safety and reliability on the road. A new industrial capacity will have to be generated to supply components for air bag systems. Major capital expenditures will have to be made by the vehicle industry to incorporate air bag systems into production models. The Department estimates that the total capital required for tooling and equipment for the production of passive restraint systems in new cars is approximately \$500 million.

Establishment of an industry to produce components for air bag systems centers on the production of the inflator component. Five major companies have indicated an interest in producing inflators for air bags. The propellant presently being considered for use is sodium azide. The primary source of sodium azide, Canadian Industries Ltd., has a capacity of around 1 million pounds per year, sufficient for only about 800,000 full front seat air bag systems. Thus, additional capacity of 10 million pounds or more of sodium azide will have to be generated, or alternative propellants would have to be used. The Department's analysis of the capital requirements and lead time to develop sufficient capacity indicates that adequate propellant can be available for annual production levels of several million units in less than three years. The production of inflators (from several sources) can reach several million units within two to three years of the

receipt of firm orders, including design specifications, from the automobile manufacturers. A new capacity has already been generated to supply the demonstration program which is being pursued at this time.

The vehicle manufacturers face substantial work to incorporate air bags in their production. In the case of domestic manufacturers alone, the instrument panels of approximately half of the new cars that will be manufactured in the early 1980's will have to be completely redesigned to provide space for the passenger bag and structure to accept the loading on the passenger bag. In some cases, relocation of the instrument cluster is needed to facilitate visibility over the bag module in the steering hub.

The burden placed on the vehicle manufacturers to redesign the instrument panel and related components to accept air bags can be reduced considerably by phasing in the passive restraint requirements over several years. With phased introduction, the redesigning of instrument panels and other components can be done at roughly the same pace that these components would ordinarily be redesigned, although perhaps not within the manufacturer's preferred schedule.

The rulemaking docket contained a number of references to additional reasons for phased introduction of new systems like passive restraints: to establish quality systems in production, to obtain experience with these systems in the hands of a more limited segment of the public, and to obtain feedback on the performance and reliability of the systems. If production levels are relatively small at the beginning of a mandated requirement, any unforeseen issues that arise are made more manageable by the limited number of vehicles affected. A major automotive supplier, Eaton Corporation, stressed this aspect of production feasibility over all others.

Based on its evaluation, the Department has determined that a lead time of four full years should precede the requirement for the production of the first passive-equipped passenger cars. This lead time accords with General Motors' requested lead time to accomplish the change for all model lines. Equally important, the 4-year lead time represents a continuation to its logical conclusion of the early voluntary production of passive restraints represented by the December 1976 decision. The continued opportunity for early, gradual, and voluntary introduction of passive restraints to the public in relatively small numbers offers a great deal of benefit in assuring the orderly implementation of a mandatory passive restraint requirement. Experience with the limited quantities of early passive-restraint-equipped vehicles can confirm in the public's mind the value of these systems prior to mandatory production. Because of the value of such a voluntary phase-in approach to both the manufacturer and the public, the Department anticipates that the manufacturers which were parties to the earlier demonstration program agreements will continue their current preparations for voluntary production of passive restraints. The Department also expects that other manufacturers will undertake to produce limited quantities prior to the effectivity of the mandate. The Department intends to vigorously support the efforts of manufacturers to foster sales on a voluntary basis, both through major public information programs and through efforts to encourage their purchase by Federal, other government agencies, and private-fleet users.

The Department also intends to initiate an intensive monitoring program to oversee the implementation plans of both vehicle manufacturers and their suppliers. The purpose of the monitoring program will be not only to confirm that adequate levels of reliability and quality are being achieved in implementing designs to comply with the standard, but also to provide assurance to the public

that the issues that have been raised on passive restraint reliability are being resolved under the auspices of the Secretary of Transportation.

In addition to a long lead time, the Department considers that the mandate should be accomplished in three stages, with new standard- and luxury-sized cars (a wheelbase of more than 114 inches) meeting the requirement on and after September 1, 1981, new intermediate- and compact-size cars (a wheelbase of more than 100 inches) also meeting the requirements on and after September 1, 1982, and all new passenger cars meeting the requirement on and after September 1, 1983.

Wheelbase was chosen as a measure to delineate the phasing requirements because it is a well-defined quantity that does not vary significantly within a given car line. With the downsizing of most automobiles made in the United States, wheelbases are being reduced by four to six inches on most standard, intermediate, and compact size cars. As a result, in the period of phased implementation (the 1982 through 1984 model years), standard size cars will generally have wheelbases in a range of 115" to 120", intermediate size cars will have wheelbases in a range of 107" to 113", and compact cars will generally have wheelbases in a range of 102" to 108". Subcompact size cars will continue to have wheelbases below 100".

The determination of which car sizes to include in each year of the phased implementation was made in consideration of the effect on each manufacturer and the difficulty involved in engineering passive restraints into each size class of automobile. Because of the extensive experience with passive restraints in full size cars, and the space available in the instrument panels of these cars to receive air bag systems, this size car was deemed to be most susceptible to early implementation.

The gradual phase-in schedule is intended to permit manufacturers to absorb the impact of introducing passive restraint systems without undue technological or economic risk at the same time they undertake efforts to meet the challenging requirements imposed by emissions and fuel economy standards for automobiles in the early 1980's.

## OTHER CONSIDERATIONS

Section 104(b) of the Act directs that the Secretary consult with the National Motor Vehicle Safety Advisory Council on motor vehicle safety standards. The Council has announced in an April 26, 1977, letter to the Department that "The Council feels that the time has come to move ahead with a fully passive restraint standard." The Council stated that it was recommending passive protection in the lateral and rollover modes as well as the frontal mode proposed by the Department. The Department therefore will take under consideration the Council recommendation, with a view to expanding the passive restraint requirement as new technology is advanced. The Council also recommended that mandatory seat belt use laws should also be promoted until the entire vehicle fleet is equipped with passive restraints. As noted, the Department intends to encourage States to enact such laws in their jurisdictions.

It is noted that the National Transportation Safety Board supported the mandate of passive restraints, with a cautionary note to preserve the present performance specification that permits meeting the requirement by means of passive belts as well as inflatable passive restraints.

The United Auto Workers Union, which represents the vast majority of the workers whose industry is affected by the mandate, has also advocated mandatory passive restraints to the Department.

The Council on Wage and Price Stability (the Council) supported the mandate of passive restraints, based on the assumptions that no serious technical problems exist with either the air bag or the passive belt system concept and that the Department's cost estimates are substantially correct. The Council based its support on the comparative costs of achieving benefits under the three approaches, finding passive restraints to be the most cost effective.

The Council urged that passive belt systems continue to be permitted as meeting the performance requirements of the standard, because they represent the least costly passive restraint system currently commercially available. Standard No. 208 has always been and continues to be a performance standard, and any device that provides the performance specified may be used to comply with the standards. With regard to passive belt systems, it is important that they remain available, particularly in the case of smaller-volume manufacturers who may not care to provide air bag type protection because of its engineering and tooling costs relative to production volume.

In accordance with S 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)), as implemented by Executive Order 11514 (3 CFR, 1966-1970 Comp., p. 902) and the Council on Environmental Quality's Guidelines of April 23, 1971 (36 FR 7724), the Department has carefully considered all environmental aspects of its three proposed approaches. A Draft Environmental Impact Statement (DEIS) was published March 25, 1977, and comments have been received and analyzed. The Final Environmental Impact Statement (FEIS) is released today. Petitions for reconsideration based on issues and information raised in the FEIS may be filed for the next 30 days (49 CFR Part 553.35).

There was substantial agreement by commenters with the agency's conclusions about impacts on the consumption of additional natural resources, the generation

of pollutants in the manufacturing process and in transporting the system throughout the vehicle's life, and on solid waste disposal problems. In response to the comments of General Motors and others on the DEIS, several estimates were revised. In the Department's view, the two most significant consequences of a passive restraint mandate are the use of large amounts of sodium azide as the generator of gas for air bags, and the increased consumption of petroleum fuel by automobiles because of the added weight of air bags.

Sodium azide is a substance that is toxic and that can burn extremely rapidly. The agency is satisfied that the material can be used safely both in an industrial setting and in motor vehicles during its lifetime, due to inaccessibility and strength of the sealed canisters in which it is packed. The problem is to assure a proper means of disposal. Junked vehicles that are shredded have batteries and gas tanks removed routinely, and the air bag could be easily deployed by an electric charge at the same time. A hazard remains, however, for those vehicles that are simply abandoned. However, the agency judges that the chemical's relative inaccessibility will discourage attempts to tamper with it. The proportion of abandoned cars is less than 15 percent of those manufactured. The Department will work with the Environmental Protection Agency to develop appropriate controls for the disposal of air bag systems employing sodium azide.

The additional weight of inflatable passive restraints was judged to increase the annual consumption of fuel by automobiles by 0.71 percent (about 521 million gallons annually). While this increase is not insignificant, the Department believes that it is fully justified by the prospective societal benefits of passive restraints. The Department took full account of the impact of a passive restraint standard in its recent proceeding to set fuel economy standards for 1981-1984 passenger automobiles.

In accordance with Department policy encouraging adequate analysis of the consequences of regulatory action (41 FR 16200, April 16, 1976), the Department has evaluated the economic and other consequences of this amendment on the public and private sectors. The basic evaluation is contained in a document ("Supplemental Inflation Impact Evaluation") that was developed in conjunction with the Department's June 1976 proposal of mandatory passive restraints. That evaluation has been reviewed and a supplement to it represents the Department's position on the effect of this rulemaking on the nation's economy.

The standard, as set forth below, allows manufacturers two options for compliance. First, a manufacturer may provide passive occupant crash protection in frontal modes only. If this option is chosen, the manufacturer must also provide lap belts at all seating positions in the automobile. The lap belts are provided to give crash protection in side and rollover crashes, and have a demonstrated effectiveness in these crash modes.

A second option for manufacturers is to provide full passive protection for front seat occupants in three crash modes: frontal, side and rollover. If a manufacturer can achieve this performance, it would not have to provide seat belts in the front seat. Under this option, lap belts would continue to be required for all rear seating positions.

The Department has found that use of any seat belt installed in accordance with the standard is necessary to enhance the safety of vehicle occupants. Thus, the Department continues to advocate the use of all seat belts installed at all seating positions in motor vehicles, regardless of whether the vehicle is also equipped with passive restraints.

In consideration of the foregoing, Standard No. 208 (49 CFR 571.208) is amended as follows:

1. S4.1.2 is amended to read:

*S4.1.2 Passenger cars manufactured from September 1, 1973, to August 31, 1983.* Each passenger car manufactured from September 1, 1973, to August 31, 1981, inclusive, shall meet the requirements of S4.1.2.1, S4.1.2.2, or S4.1.2.3. Each passenger car manufactured from September 1, 1981, to August 31, 1982, inclusive, shall meet the requirements of S4.1.2.1, S4.1.2.2, or S4.1.2.3, except that a passenger car with a wheelbase of more than 114 inches shall meet the requirements specified in S4.1.3. Each passenger car manufactured from September 1, 1982, to August 31, 1983, inclusive, shall meet the requirements of S4.1.2.1, S4.1.2.2, or S4.1.2.3, except that a passenger car with a wheelbase of more than 100 inches shall meet the requirements specified in S4.1.3. A protection system that meets the requirements of S4.1.2.1 or S4.1.2.2 may be installed at one or more designated seating positions of a vehicle that otherwise meets the requirements of S4.1.2.3.

2. A new S4.1.3 is added to read:

*S4.1.3 Passenger cars manufactured on or after September 1, 1983.* Each passenger car manufactured on or after September 1, 1983, shall—

(a) At each front designated seating position meet the frontal crash protection requirements of S5.1 by means that require no action by vehicle occupants;

(b) At each rear designated seating position have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 and S7.1 and S7.2; and

(c) Either—

(1) Meet the lateral crash protection requirements of S5.2 and the roll-over crash protection requirements of S5.3 by means that require no action by vehicle occupants; or

(2) At each front designated seating position have a Type 1 or Type 2 seat belt assembly that conforms to Standard No. 209 and S7.1 through S7.3a, and meet the requirements of S5.1 with front test dummies as required by S5.1, restrained by the Type 1 or Type 2 seat belt assembly (or the pelvic portion of any Type 2 seat belt assembly which has a detachable upper torso belt) in addition to the means that require no action by the vehicle occupant.

*Effective date finding:* Under § 125 of the Act, an amendment of Standard No. 208 that specifies occupant restraint other than belt systems shall not become effective under any circumstances until the expiration of the 60-day review period provided for by Congress under that section "unless the standard specifies a later date". Section 125 also provides that the standard does not become effective at all if a concurrent resolution of disapproval is passed by Congress during the review period. The Department's view of this section is that a "later date" can be established at the time of promulgation of the rule, subject to the possibility of reversal by the concurrent resolution.

The amendment is therefore issued, to become effective beginning September 1, 1981, for those passenger cars first subject to the new requirements. The reasons underlying the effective dates set forth in the standard have been discussed above. The establishment of the effective dates is accomplished at this time to provide the maximum time available for preparations to meet the requirements. The Congressional review period will be

completed prior to the commitment of significant new resources by manufacturers to meet the upcoming requirements of the standard.

The program official and lawyer principally responsible for the development of this rulemaking document are Carl Nash and Tad Herlihy, respectively.

(Secs. 103, 119, Pub. L. 89-563, 80 Stat. 718 (15 U.S.C. 1392, 1407))

Issued on JUN 30 1977.

/S/ BROCK ADAMS

Brock Adams  
Secretary of Transportation

TABLE I

## Occupant Crash Protection System Effectiveness Estimates

<u>AIS Injury Level</u>	<u>Lap Belt</u>	<u>Lap and Shoulder Belt</u>	<u>Air Cushion</u>	<u>Air Cushion and Lap Belt</u>	<u>Passive Belt and Knee Bolster</u>	<u>Knee Bolster</u>
1	.15	.30	0	.15	.20	.06
2	.22	.57	.22	.33	.40	.10
3	.30	.59	.30	.45	.45	.15
4-6	.40	.60	.40	.66	.50	.15